Electrical World

NEWS ISSUE SEPTEMBER 7, 1946

One Thousand Persons Visit Ashtabula Plant of Cleveland Electric Illuminating Co.

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Spot welding in an aircraft plant—one of nearly 100 resistance welding applications shown in the film.

You'll make firm friends among metal fabricators by showing this full-color sound movie—latest addition to G.E.'s *MORE POWER TO AMERICA* program.

G.E. Announces A NEW FULL COLOR MOVIE

This new full-color sound movie takes its audience into fifteen different industrial plants and shows how costs are cut by resistance welding. It illustrates by animated sketches the principles and uses of three types of resistance welding—spot, projection, and seam. It contains many pointers for making more effective use of this method of joining metals, of equal interest to beginners and "old-timers" in its use.

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To round out the program, G.E. supplies a 12-page reminder bulletin which reiterates the key points of interest for those who have seen the film.

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MORE POWER TO AMERICA
GREATER EMPLOYMENT

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ELECTRICAL WORLD

NEWS ISSUE

VOLUME 126 NUMBER 10

SEPTEMBER 7, 1946

Wickard Concedes Over Half of REA Lines Inadequate

Tells Illinois Association of Electric Cooperatives That Difficulty Is Customers Are Using More Power Than Systems Were Originally Designed to Carry

RURAL Electrification Administrator Claude R. Wickard conceded this week that more than 50 percent of the energized, REA-financed systems are underbuilt to a point at which they cannot supply rising demands. At the same time, he criticized transmission and generation inadequacies in "many" and "some" sections of the country.

"Operating reports of REA borrowers reaching us in Washington indicate that 432 of 835 energized REA-financed systems even now are not able to supply all the power needed by their present consumers," Wickard told a meeting of the Illinois Association of Electric Cooperatives at Springfield. "Most of the trouble in Illinois, as in other states, is that rural people are using more power than the distribution systems serving them were originally designed to carry."

Wickard said that system growth away from substations erected early in the history of cooperatives is resulting now in increasing complaints about low voltage.

"Increased substation capacity can provide temporary relief for many of the cooperatives now having low voltage troubles," Wickard said. "At best, increased substation capacity will not provide adequately for the future needs of many of the expanding REA distribution systems. In many sections of the country, existing transmission facilities do not have the carrying capacity to deliver sufficient power to the distribution systems at the required number of delivery points. In some sections, generating facilities are already inadequate. . .

"We do not need to apologize for the inadequacy of any existing REA-financed facilities serving rural areas. Our single-phase distribution systems are the best ever built for the purpose for which they were built. They have delivered and are delivering more service per dollar invested than any other rural power lines ever built. Most of these lines are giving satisfactory service, but we know that they will not be adequate in many cases to carry the increased load which is coming with the electrical age in agriculture."

Wickard asserted that "consumption of electrical energy by rural people is exceeding all expectations," and added:

"We are glad this is true because it proves that rural people have been thoroughly sold on the idea that they can generally raise their living standards and realize greater profits through use of electric power."

To insure against future underbuilding, Wickard said, REA engineers are now assisting "practically all" cooperatives in ultimate system studies which "will provide for plans for adequate substation capacity, properly located substations, and multi-phase lines to serve future needs, so far as the distribution systems are concerned. But if rural people are to receive the kind of electric service they must have in order to enjoy its maximum benefits, the systems serving them must have access to adequate sources of power at reasonable rates. This calls for a lot more vision than has yet been demonstrated by many of the power suppliers upon which REA cooperatives are dependent for wholesale power."

Wickard then called upon privately owned utilities to substantiate their offers of cooperation with REA by "open abandonment of cream-skimming and spite line activities in territory in which they have no idea of providing area coverage electrification," and went on to say:

Opposes Dual Rate Schedule

"Next I would ask the utilities to abandon such dog-in-the-manger tactics as the dual rate schedule devised for limiting the services of REA cooperatives buying power from them.

"Finally, I would suggest that they give immediate attention to the problem growing out of deficiencies in generation and transmission facilities so that they can be in a better position to provide adequate power at a reasonable cost. The commercial power companies, themselves, would be better off, and so would the REA program, if they would do this rather than constantly oppose REA authorizations for serving rural people."

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FOREIGN POWER NOTES

France . . . According to the draft terms of the Italian peace treaty France, which receives a small slice of Alpine Italian territory, has agreed to supply Italy with power from the three hydro plants in the area. The amount of the power will not surpass 5,000 kw. or 3,000,000 kw.-hr. a month, and will be supplied until 1961.

ALTHOUGH French electricity and gas prices were raised on July 1, another very substantial increase is in the offing. The Minister of Industrial Production, M. Marcel Paul (Communist), who has charge of the recently nationalized electric and gas industries, has asked the cabinet to approve a further boost of 40 percent for electricity and 27 percent for gas.

Electricity prices in Paris are now 2.74 times the 1939 prices, while gas stands at 2.81 times the prewar level.

The new price increases are held necessary by M. Paul to undertake vitally needed repairs and replacement of material, which had been skimped by the former private owners because of shortage of supplies during the war and because of the low level of their rates.

Australia . . . The Australian governments are seeking new sources of electric supply in water power because of scarcity of coal and recurrent rationing of electricity and gas. It is proposed to build a dam at Jindabyne, an enormous rift in the headwaters of the upper Snowy River, the only Australian river permanently snowfed.

The New South Wales government wishes the impounded water to be diverted into another dam at Billilingera, on the Murrumbidgee River, and used for irrigation. The Victoria government has a rival plan, embodying proposals drafted by two Swedish engineers twelve years ago. It provides for the generation of 250,000 kw. of electrical energy compared with 50,000 in the Murrumbidgee plan, and diversion of the Snowy into the Murray River above the Hume Reservoir. The water would twice be used to generate electric power, then turned into the Murray to be used for irrigation in New South Wales, Victoria and South Australia. It is estimated that eventually 1,000,000 tons of coal a year would be saved.

While the two plans are under consideration, the River Murray Commission and the New South Wales and Victoria governments have agreed upon preliminary details for the use of the waters of the Hume Reservoir for generating electric power when its capacity has been increased from 1,250,000 to 2,000,000 acre-feet.

Russia . . . The first 50,000-kw. turbine is due to generate power shortly in the rebuilt Kurakhovka station in the Donbas. The Kurakhovka plant was built shortly before the outbreak of the war. Before retreating, the Germans blew up all the buildings of the station and razed the settlement around it. Another turbine of similar capacity is being manufactured for installation early next year.

AN UNDERGROUND hydroelectric station is under construction at Terevan, Armenia, S.S.R. Known as the Ozernaya (or lake) station, it is the initial link in a power project which involves lowering the water level and reducing the area of age-old Lake Sevan and raising the level of its only outlet, the Zanga River.

Ultimately the project envisages a string of eight power stations along the river bank. The first of them, the Kanaker station, was put up shortly before the war; by the end of the current five-year plan the Ozernaya station now building will be working at full capacity, and a third, the Gyumush, at half capacity.

Since a complicated system of underground and surface installations will have to be built, it is calculated that at least two five-year plans will be needed to complete the cascade of power stations.

Sweden . . . Preparations are being made to carry out a $325,000 experiment to transmit high-tension direct current between Mellerud and Trollhattan in southwest Sweden. If this system proves successful, it will gradually be applied to a new 400-kv. national power line which will be built in Sweden after the completion of Harsprawget, the country's largest hydroelectric power station. The line will be about 600 miles long.

Saudi Arabia . . . The Export-Import Bank (U. S.) has signed an agreement providing a $10,000,000 credit for Saudi Arabia, part of which will be used to purchase, in the United States, electrical equipment and supplies. Advances may be made under the agreement until June 15, 1948.

261,710 New Consumers Added by REA in Year

Rural Electrification Administration financed power systems added 261,710 new consumers during the fiscal year ended last June 30, REA has announced, adding that only in fiscal 1940 were more consumers (281,000) added during a single year.

Of these customers, 230,000 received service for the first time, while 31,000 were added as a result of acquisitions and an act which transferred to REA, cooperatives originally financed by the Tennessee Valley Authority. About 17,000 of these were through acquisitions of existing systems, the remainder through the refinancing of Tennessee and Alabama co-ops.

More than 148,000 of the 230,000 new consumers were added during the last half of the fiscal year. Most of the new customers were added through fairly short extensions to existing lines, REA asserted, as the materials shortage held down much larges-scale construction. Miles of line added during the year totaled only 50,765, well below the fiscal 1940 total of 117,000 miles.

Twenty-three new systems, serving 15,149 customers, were energized during the year, bringing the total of energized systems to 857. In addition, loans were made to 138 other borrowers who had not energized any lines at the year's end.

Total customers last June 30 was 1,549,057, who are served from 474,837 miles of line. REA had allocated but not advanced sufficient funds to connect another 600,000 customers, and requests for loans to connect another 400,000 had been made but not acted upon.

Texas, with 24,289 connections, and Missouri, with 17,214, the latter not including acquisitions, led all states in connections during fiscal 1946. Texas, with 128,505 customers and Tennessee, with 104,633, led all states in total REA-financed connections.

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NLRB Orders Election

The National Labor Relations Board has ordered an election within 30 days of August 16 in which supervisory employees at the Long Beach steam plant of the Southern California Edison Co. will vote for or against representation by the International Brotherhood of Electrical Workers, A.F.L.

Meanwhile, NLRB has certified the Utility Workers Union, C.I.O., as collective bargaining agent for system dispatchers in the central load dispatching office of the Pacific Gas & Electric Co. after a mail election which the union won, 7-5.

Atomic Power Pilot Plant in 3 Years Considered Possibility by G.E. Expert

Bruce R. Prentice Tells A.I.E.E. at Seattle of Problems of Such Installation—Long Distance Transmission under Study—Southern California Ground Relaying Explained

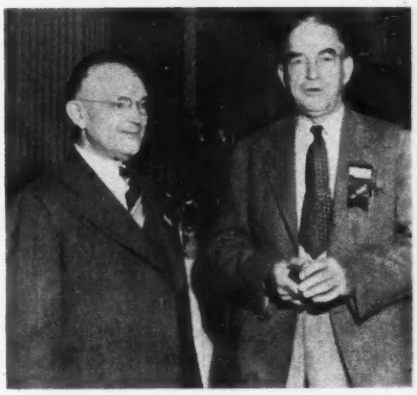
ATOMIC POWER, longer distance transmission, sensitive ground protection, special low reactance machine design, switching surges, circuit breaker tests, and railway electrification were topics of major interest at the Pacific Coast meeting of the American Institute of Electrical Engineers, held at Seattle, August 27-30.

A successful atomic power pilot plant within two to three years was held out as a possibility by Bruce R. Prentice, General Electric Co. Of several possible means of obtaining power from fissionable materials, the most likely, according to Prentice, is by use of some liquid metal to absorb the heat of fission and through a heat exchanger to generate steam for use in turbines. Investment in fuel would be high and probably fuel costs would be capitalized in an atomic power plant. Challenging problems are methods of getting the heat out of piles, shielding, and safety, but the economics of atomic power do not look impossible, Prentice explained.

Compensation of reactance by series capacitors in long 230-kv. lines to extend the present range of transmission to 400 miles and more was critically reviewed by B. V. Hoard, Bonneville Power Administration, with particular emphasis on the technical problems involved. There are several new problems to be solved, important among which are means of protecting the capacitors during faults and quickly restoring them to service, and the difficulties of relaying such a system. Hoard feels that these problems can all be solved through the combined efforts of operating engineers and the manufacturers.

SPEAKERS—Lloyd F. Hunt, left, consulting engineer, Southern California Edison Co., and B. V. Hoard, design engineer, Bonneville Power

A system of sensitive ground relaying on radial and loop primary distribution circuits to reduce fault currents that has been in successful operation by Southern California Edison Co. for six years was described by Lloyd F. Hunt. Circuits so protected trip out with 1 amp. of ground fault current and hence cause little or no damage in case of contact with communication circuits. More importantly, hazard to life and property in case of fallen conductors is reduced to the point of being almost non-existent, so sensitive are the relays and so fast the response.



OFFICERS—J. Elmer Housley, left, president of A.I.E.E., and Charles F. Terrell, vice-president of the Ninth District, A.I.E.E.

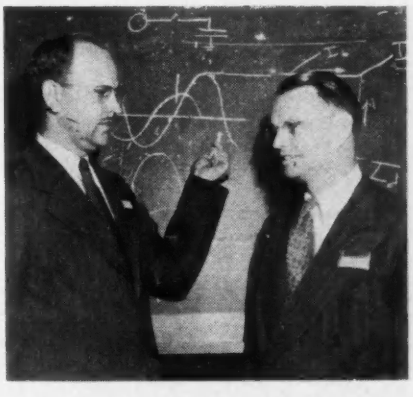
Interest was revived in low reactance intermediate synchronous condensers with high speed response as a means of increasing stability and load limits of long transmission lines in a paper by C. Concordia, S. B. Crary, and F. J. Maginnis, General Electric. The building of machines with low transient reactance for this purpose now appears practicable, the authors implied. If insulation values of present 230-kv. and 287-kv. equipment are suitable for operation at 350-kv., as some feel that they are, then the development of low reactance condensers for use at intermediate points along such lines might prove a solution to the problem of transmitting bulk power over distances of 400 to 600 miles.

P. L. Bellaschi, Westinghouse Electric Corp., who co-authored with L. B. Rademacher, a paper on dielectric strength of station and line insulation to switching surges, said that switching surges are probably not as high as we have expected, being not over 3½ times normal for grounded neutral systems. He thinks that isolated neutral systems will run 90 percent higher and possibly up to seven times higher. Discussion credited the authors with having filled a gap between impulse and 60-cycle tests in a long needed investigation, by the contribution they have made.

Circuit breaker tests in which 4,370,000 kva. were interrupted, believed the greatest fault kva. ever interrupted, were described by W. H. Clagett, Bureau of Reclamation, and W. M. Leeds, Westinghouse. They concluded that circuit breakers have not reached their ultimate interrupting capacity and that the way seems open to designing oil circuit breakers for a goal of 7,500,000 kva.

Results of a study by T. M. C. Martin, BPA, on main line railway electrification with 4-mill power elicited considerable discussion. R. Beeuwkes, for 30 years electrical engineer of the C.M. & S.P., pointed out that conclusions had been based purely upon hypothetical premises. He feels that increasing fuel costs, new developments in prospect for electric locomotives and 4-mill power could easily change the present economic relationship between steam, diesel and electric in favor of the latter. He urged that any studies made be based upon actual railroad operating conditions.

An innovation in Pacific Coast meetings was a special half-day session devoted to organization of the engineering profession, presided over by Charles Carpenter with J. F. Fairman as discussion leader.



ON PROGRAM—Winthrop M. Leeds, left, Westinghouse Electric Corp., and William H. Clagett, Bureau of Reclamation

Alabama Power Will Add 7,500 Miles of Rural Lines

Alabama Power Co. is embarking on a rural construction program which calls for the construction of 7,500 miles of line to serve about 35,000 customers. Approximately one-third of the construction will be completed this year and the remainder during the next two years. The company will spend $3,810,029 on rural lines this year, as compared with $1,825,000 last year.

E. W. Robinson, operating vice-president, stated that this is the most important phase of the company's construction program this year which calls for the expenditure of $8,122,056 in addition to $1,794,155 which will be spent on maintenance.

Mr. Robinson said that the most important single item to be completed in 1946 is the Gadsden-Guntersville 154-kv. tie line between the Commonwealth & Southern and TVA systems which will increase the total tie line capacity between these systems by about 50,000 kva. The project was started last year.

The most important single project which will be started and completed this year is a 110-kv. transmission line from Thurlow Dam to the Phoenix City-West Point area to take care of load growth. This will have a capacity of 40,000 to 60,000 kva. under various conditions.

The company plans to increase capacity at transmission substations, distribution substations and in distribution systems to relieve overloads which developed during the war and to provide for foreseeable load increases. Completion of some of these projects will be delayed until the first quarter of 1947 because of delay in equipment deliveries.

The comprehensive rural construction program also provides for connection of about 10,000 new customers to existing urban and rural lines, Mr. Robinson said. Last year the company connected approximately 15,500 additional urban and rural customers and so far applications have been taken from 32,000 more customers.

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Municipal Under Scrutiny

The town council of Pacific, Wash., has appointed a committee to study complaints that its municipally operated electric power service is inadequate and the rates too high. Several residents said they believed that the town must charge a higher rate to operate than would be the case if the Puget Sound Power & Light Co., from which the town buys power, owned the system.

MAKING THE TOUR—Members of the families of employees of the Cleveland Electric Illuminating Co. get a lecture on oil circuit breaker equipment during an inspection trip of the company's Ashtabula plant

Cleveland Electric Opens Plants to Men's Families

(See Front Cover)

Because employees of the Avon plant of the Cleveland Electric Illuminating Co. were so proud of it when it was opened last year, they secured permission from the company to hold "open house" for their wives and families.

With volunteer guides chosen from union membership, the event was so successful that this year similar events were conducted at the Lakeshore and Ashtabula plants. A. A. Casey, general superintendent of plants, was in charge of the tours. The guides were given diagrams to follow and were taught how to explain the operation of a plant in non-technical language.

At the Lakeshore plant, in June, over 2,000 persons made the trip, and at the Ashtabula plant in August, attendance was approximately 1,000. Refreshments were served on both occasions.

Mr. Casey feels that the general objective of cultivating friendly relationships among the employees has been successfully attained and that letting the family see "where the old man works" has enlisted their loyal cooperation. An incidental advantage has been the "house cleaning" which the employees give the plant in advance.

The company is now considering the possibility of holding similar events for the public.

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Utility Improving Service

Residential electric customers of the New Jersey Power & Light Co. will receive a 90 percent billing credit on their bills, based on meter readings made from September 1 through September 30. The 90 percent discount will also apply to the first $150 of bills of all other customers for the same period. Total savings to customers will be approximately $287,000. This is the seventh billing credit to be given by the company since July, 1942, and total savings to customers have been $1,021,851.

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Utilities Organize to Solve Communications Problems

Organization of a committee interested in utility's communication has been completed by the Missouri Valley Electric Association to represent the members in working with the Federal Communications Commission and other interested groups such as the Radio Technical Planning Board.

Purposes are to assist member companies in making frequency choices so as to eliminate as far as possible any interference and to endeavor to reconcile differences between member companies before reference to the Federal Communications Commission. Further purposes included advice and assistance for member companies in operating communications equipment in a manner to the best interests of all in the regional area.

The new group includes utilities in Missouri, Iowa, Kansas, Oklahoma, Nebraska, and nearby Illinois cities.

The committee is organized on a permanent basis under the heading Utility Communications Association. C. M. Lytle, Kansas City Power & Light Co., has been elected chairman.

BPA Will Market Power from Foster Creek Dam

The Bonneville Power Administrator has been designated marketing agent for power to be developed at the Foster Creek project, authorized for construction on the Columbia River by Congress in the Rivers and Harbors Act.

The Army Engineers project will be located approximately 53 miles downstream from Grand Coulee Dam. Plans call for installation of sixteen 64,000-kw. generators, giving the plant a total rated capacity of 1,024,000 kw.

Designed primarily as a power project, Foster Creek Dam ultimately will be one of the largest hydroelectric plants in the series of dams proposed to harness the water power resources of the Columbia River and its tributaries. It will be located in the heart of the area now served by the Bonneville Power Adminstration's region-wide transmission grid. It will be integrated with the Bonneville and Grand Coulee plants and other power projects already approved for construction in the Columbia basin, including McNary Dam on the Columbia River, Hungry Horse on the Flathead River in Montana, the Detroit project on the North Santiam River in the upper Willamette valley in Oregon, and a series of dams on the lower Snake River in Idaho.

D. L. Marlett, assistant Bonneville administrator, said that recommended generator installation schedules based on Bonneville load estimates call for completion of the first three units at Foster Creek by September, 1953.

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Pensacola Dam Returned by Interior to Oklahoma

Transfer of Pensacola Dam back to Oklahoma's Grand River Dam Authority by the Interior Department's Southwestern Power Administration was completed last week, Interior Department officials have announced.

The dam, erected under PWA loan and grant financing, was taken over by the government from the authority in November, 1941, while still uncompleted. The acquisition was based upon the necessity for integrating the hydro electric plant there with other systems for maximum contribution to the war effort. For some time it was operated and its energy marketed by the Federal Work Administration, but in mid-1943 control was passed to Interior, which organized SPA to handle its output as well as that of Denison and Norfork Dams, which came into operation later.

While the turn-back will leave SPA with only 70,000 kw. of capacity, one machine each at Denison and Norfork, Interior officials expect a contract to be signed shortly which will provide for integration of Pensacola's power plant with SPA plants and other systems. Pensacola's has four 15,000-kw. machines in operation and a fifth being installed.

Under the legislation permitting the turn-back, interest rates on the PWA loan were lowered from 4 to 2.5 percent.

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G.O.P. Adopts Power Plank

The Republican party in New York has included the following plank in its state platform:

"We shall continue to oppose the sale, lease, or licensing to private ownership of the people's interest in the state's undeveloped water power resources."

The platform also extols the law which allows New York to collect rental payments for the use of waters previously diverted without charge from the Niagara River.

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Heating Show Planned

The 7th International Heating and Ventilating Exposition will be held, January 27-31, at Lakeside Hall, Cleveland, in conjunction with the annual meeting of the American Society of Heating and Ventilating Engineers. Space is now being assigned to manufacturers of air-conditioning, heat pump, and similar equipment.

Duquesne Strike Voted; Mayor Acts to Avert It

A strike to enforce their wage and union demands was voted on Tuesday night by employees of the Duquesne Light Co. and affiliated companies. The workers stipulated that the time and date of the strike should be set by the General Strike Committee but urged it be as soon as possible. The vote, taken at a mass meeting in Carnegie Music Hall, was 1,008 for to 568 against the strike.

Mayor David L. Lawrence announced immediately that he did not accept the action as meaning the strike is "inevitable," and called on both parties to resume negotiations at 2 p.m. on Wednesday.

The mayor urged that all influence be brought to bear on both sides to reach a settlement. A similar policy was followed by the mayor last February to avert a second walkout that month. At that time both parties agreed to submit their dispute to arbitration.

Before the union voted by secret ballot to strike, it rejected by overwhelming voice vote an eleventh hour proposal embodying 20 points to which the Duquesne Light Co. and its affiliates would agree.

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Utilities Taxes Begin Oct. 1

Beginning October 1, St. Petersburg and Fort Pierce, Fla., will collect a 10 percent tax on all utilities bills.

DON'T GET DISCOURAGED—Hartford Electric Light Co., handicapped like all utilities by material shortages, is using this billboard near the Connecticut capitol to encourage consumers who want an all-electric home

NEWS ABOUT PEOPLE

Jardine Heads Penelec; Vice-Presidents Assigned

David W. Jardine, senior vice-president of the Pennsylvania Electric Co., has been elected president to succeed Philip H. Harris whose retirement was effective September 1. His office will be at Johnstown, Pa.

Other changes in key executive posts are: W. H. Wade, Altoona, formerly

D. W. JARDINE

vice-president in charge of the Eastern division, has been made vice-president in charge of operations; R. A. Gallagher, Oil City, formerly vice-president in charge of the Keystone division, will be vice-president in charge of industrial relations and rates; B. M. Kirsch, Bradford, formerly vice-president in charge of the Northern division, will be vice-president in charge of sales. W. C. Sontum remains vice-president in charge of the technical department.

Mr. Jardine has been in the utility business since 1907 when he received his mechanical engineering degree from Lehigh University. His first position was with the American Gas Co.; later he was transferred to the Burlington (Vt.) Light & Power Co. as assistant manager. He was elected president of that company in 1924 but resigned in July, 1928, to become a regional vice-president of Philadelphia Electric Co.

On January 1, 1930, he was named vice-president and general manager of the Erie County Electric Co., Erie, Pa., and president in December, 1936. When this company was merged with Pennsylvania Electric Co. in September, 1943, Mr. Jardine was elected a vice-president with headquarters in Erie.

Mr. Harris, the retiring president, joined Penelec in 1916 after a varied experience in industry. His first position was that of superintendent of electrical distribution. A steady series of promotions led to a vice-presidency in 1931 and to the presidency in 1937.

Mr. Wade, a graduate of the University of Pennsylvania, joined the Penn Central Light & Power Co., Altoona, in 1914 as a power engineer. He was made new business manager in 1917, assistant to the president in 1929, and vice-president in 1930. When the company was reorganized in 1939, he became vice-president and assistant general manager of the Pennsylvania Edison Co., and in 1941, senior vice-president and general manager. When Penelec purchased Pened last July, he was made a vice-president.

Mr. Gallagher was graduated from Penn State in 1923. He was employed

W. H. WADE

by Duquesne Light Co. and the Alabama Power Co. before joining Penelec in 1926 as accountant and appraisal engineer. In 1930, he became general auditor, a position he held until 1937 when he transferred to the Kentucky-Tennessee Light & Power Co., as treasurer and chief accounting officer. He returned to Penelec in May, 1941.

Mr. Kirsch joined the Bradford Electric Co. in 1930 as power engineer. He advanced to the presidency but resigned in April, 1941, to become vice-president and general manager of the Erie Lighting Co. and vice-president of Penelec.

Willson Elected President of North Central Group

Stuart Willson, division manager, Northern States Power Co., Faribault, Minn., has been elected president of the North Central Electric Association.

A graduate of the University of Min-

S. WILLSON

nesota, Mr. Willson started in the sales department, Minneapolis office, Northern States Power Co., was transferred to St. Cloud sales in 1925 and to LaCrosse in 1926. In 1940 he was appointed manager of the Montevideo division and of the Faribault division three years later.

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▶ JOHN J. DALY has been appointed retail sales manager of the Connecticut Light & Power Co., Waterbury, succeeding the late William M. Walsh. Mr. Daly was former commercial manager of the company's southern division and lately has been sales promotion manager. He will be responsible for the staff planning phases of retail market development, and will be assisted by Charles A. Byron, newly appointed appliance manager, in charge of appliance sales and the preparation of sales plans. Mr. Byron has been assistant merchandising manager.

▶ CLARK H. MINOR, formerly president of the International General Electric Co., Inc., has left for London, where he will receive from King George a citation as honorary Knight Grand Cross in the Order of the British Empire.

Elliott Appoints Pollard Engineering Manager

E. I. Pollard has been appointed engineering manager of Elliott Co.'s Ridgway Division. With an extensive

E. I. POLLARD

background in the design of electrical equipment, Mr. Pollard has centered his efforts during the past year on the design of a complete new line of Elliott motors and generators.

Mr. Pollard is in charge of electrical engineering for the company, replacing Quintin Graham, who recently has been made assistant manager of the Ridgway Division.

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▶ WILLIAM G. PARMENTER has been made superintendent of substation construction and maintenance for Georgia Power & Light Co. at Valdosta. Mr. Parmenter recently returned to the company after four years of duty in the Army Signal Corps. He held the rank of captain.

▶ ROBERT H. OWENS has been elected vice-president in charge of engineering and manufacturing of Roots-Connersville Blower Corp., Connersville, Ind., one of the Dresser Industries. Mr. Owens has been connected with Roots-Connersville since 1925.

▶ RALPH O'BRIEN has been named manager of a new district office in Sunnyslope of the Central Arizona Light & Power Co., Phoenix, Ariz. His appointment followed ten years of service with the company in line construction, maintenance and general utility operation.

▶ J. O. TOBEY, superintendent of the Pacific Gas & Electric Co. electrical division at Sacramento, Calif., has retired after 45 years' service in the power field. Mr. Tobey's electrical career began in Shasta County in 1901 as a lineman with Keswick Light & Power Co., which later was absorbed by P. G. & E. From 1909 until 1918 he was power division superintendent in Sacramento, after which he supervised the city transportation system until 1943. His successor in the electrical division will be W. L. HILL, superintendent of lines for P. G. & E.

OBITUARY

Albert S. Crane

Albert Sears Crane, 78, a former vice-president of the J. G. White Engineering Corp., died August 26, at the Engineers Club, New York City, where he made his home.

Mr. Crane joined the J. G. White Corp. as a hydraulic engineer in 1905. In 1913, he became vice-president and served in that capacity until 1928, when he became a consulting engineer in the field of hydraulics.

During his long career, he engaged in the construction of 30 large earth dams, 60 masonry dams, 40 hydroelectric stations, and six irrigation projects.

A native of Addison, N. Y., Mr. Crane was graduated from Cornell University in 1891. His first job was as an assistant engineer with the Department of Sewers in Brooklyn. Other positions which he held in following years were chief assistant engineer of the Michigan Lake Superior Power Co., chief engineer of the Lake Superior Power Co., and principal assistant engineer of the Chicago Drainage Canal.

He was a member of the American Society of Civil Engineers and of the American Institute of Electrical Engineers.

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▶ JOSEPH T. KIERNAN, a member of the staff of Ford, Bacon & Davis, Inc., engineers, New York, died on August 20 at the age of 55. Born in Brooklyn, N. Y., Mr. Kiernan first worked as a valuation expert for the New York Central, Lehigh Valley, and Boston & Maine Railroads. After military service in World War I, he joined the staff of Day & Zimmermann, Philadelphia. Subsequently he became identified with Ford, Bacon & Davis.

▶ GEORGE L. SPENCER, SR., 58, superintendent of light and power distribution for the Duke Power Co. at Greensboro, N. C., died suddenly in that city on August 22. He was employed by Duke Power at Greensboro for nearly 40 years.

Alexander R. Stevenson, Jr.

Dr. Alexander R. Stevenson, Jr., staff assistant to the vice-president in charge of engineering policy for the General Electric Co., died suddenly, August 18, in a hospital at Schenectady where he was taken following a heart attack at his home. He was 53 years old.

As an assistant to Harry A. Winne, vice-president in charge of engineering, Dr. Stevenson was assigned to matters of education and training of engineering personnel. He was secretary of the Engineering Council, assisted the company's six operating departments and the laboratories with their educational and training programs for engineering personnel, and coordinated these programs from a company-wide standpoint.

A native of Schenectady, Dr. Stevenson held the degree of civil engineer (Princeton, 1914) and of doctor of philosophy (Union College, 1917). His career with General Electric was interrupted by the first World War during which he served with the Army Air Service in France.

Upon his return in 1919, he was assigned to the industrial engineering department of General Electric. In 1923 he became a member of the engineering general department. Later, as staff assistant to the engineering vice-president, he covered mechanical engineering, development of new products, and engineering education. He helped create the air-conditioning department.

He was a fellow of the American Institute of Electrical Engineers and of the American Society of Mechanical Engineers, and past-president of the American Society of Refrigeration Engineers.

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▶ ROLAND H. BOWLER, 35, Enterprise, Utah, manager for the Southern Utah Power Co., died recently following an accident. He was at the top of a 35-ft. pole, repairing a transformer, when he touched the transmission wire, setting fire to his clothes and the transformer. He fell to the ground where witnesses extinguished the flames and placed him in an auto to take him to the Cedar City, Utah, hospital. He died on the way.

▶ PHILIPS PAYSON BOURNE, 75, former chief engineer of the Worthington Pump & Machinery Co.'s plants at Cambridge, Mass., and Harrison, N. J., died at Foxboro, Mass., August 26. He was a graduate of the Massachusetts Institute of Technology in 1892, and in late years had been connected with the Foxboro Co., following his retirement from the Worthington organization.

SEC RULINGS

The Securities and Exchange Commission recently issued a series of orders affecting electric utility companies.

COLUMBIA GAS & ELECTRIC CORP.'s amended application, providing, among other things, for the reclassification of the common stock of the Cincinnati Gas & Electric Co., a subsidiary of Columbia, has been approved. In connection with the reclassification, Cincinnati would issue to Columbia 2,040,000 shares of the reclassified common stock, $8.50 par value, in return for the surrender by Columbia for cancellation of 771,545 shares of Cincinnati's presently outstanding, no par value, common stock. Columbia proposes to offer to its stockholders 2,038,312 1/3 shares of common stock, $8.50 par value, of Cincinnati, to sell to underwriters such of the 2,040,000 shares of Cincinnati common stock as is not purchased by Columbia's stockholders. Columbia intends to apply the proceeds from the sale of the Cincinnati common, together with cash on hand and the proceeds of a new debenture issue, to the retirement of its outstanding 1½ percent bank loan of $16,500,000, the redemption of its preferred and preference stocks having an aggregate call price of $119,848,075, and to assist certain of its subsidiaries in carrying out a construction program. The commission also granted Columbia exemption from the competitive bidding provisions of Rule U-50 in respect to the underwriting of the offer of sale of the Cincinnati common stock to Columbia's stockholders and the sale to underwriters of any unpurchased shares. The commission reserved jurisdiction over the price to be paid Columbia for the Cincinnati common stock and other expenses connected with the over-all transactions. (Release No. 6840).

NORTH AMERICAN CO. has been authorized to distribute and transfer on October 1, 1946, to its common stockholders of record on September 3, 1946, shares of common stock of Pacific Gas & Electric Co., having a par value of $25 per share, in payment as a dividend to such stockholders, at the rate of one share of common stock of Pacific Gas & Electric on each one hundred shares of the outstanding common stock of the North American Co. (Release No. 6852).

PENNSYLVANIA ELECTRIC CO.'s proposal to sell its manufactured gas facilities to J. H. Ware, 3rd, for $60,150 in cash, subject to adjustments, has been approved. Mr. Ware is organizing three companies, Lock Haven Gas Co., Clearfield Gas & Fuel Co. and the Renovo Gas & Fuel Co., for the purpose of acquiring the property. (Release No. 6824).

AMERICAN GAS & ELECTRIC CO. and its subsidiary, Scranton Electric Co., have received commission approval on the amendments they filed relative to service arrangements between Scranton and the American Gas & Electric Service Corp. The amendment is permitted to become effective forthwith, subject, however, to the terms and conditions contained in Rule U-24. The joint application-declaration and amendments thereto provided that the service contract would in all respects be terminated not later than three months subsequent to the disposition by American of its interests in Scranton, except that Service Corp. would continue to render to Scranton services directly related to the construction of an addition to Scranton's suburban generating station until the completion for commercial operation of such addition, the time for such completion and operation being estimated at August 1, 1947. (Release No. 6826).

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Utility Expansion Permitted

California Electric Power Co. has been granted state permission to extend service into a portion of Imperial County's Palo Verde Irrigation District. The company had been excluded from the area until 1968 under an agreement with the Imperial Irrigation District made in 1943. The area has built up rapidly since the agreement was made.

House Heating Electricity Barred to New Customers

Northwestern Electric Co., and Portland General Electric Co., Portland, Ore,. have notified manufacturers, jobbers, and dealers of electrical home heating equipment that present electrical material shortages make it impossible for them to accept new space heating loads at present.

The companies have asked that all such equipment be sold with the clear understanding that it may not be usable this heating season.

Applications for house heating service made after the notification was given are being taken on a contingent basis, with the promise that connections will be made as soon as transformers and other critical and scarce materials are available.

MEETINGS

Previously Listed

Instrument Society of America—National Instrumentation Conference and Exhibit, Wm. Penn Hotel, Pittsburgh, Pa., September 16-20. Richard Rimbach, executive secretary, 1117 Wolfendale St., Pittsburgh 12, Pa.

Illuminating Engineering Society—National convention, Chateau Frontenac, Quebec, September 18-21. A. D. Hinckley, executive secretary, 51 Madison Ave., New York 10, N. Y.

International Association of Electrical Inspectors—Northwestern Section, Boise Hotel, Boise, Idaho, September 23-25; W. L. Gaffney, secretary, 408 City Hall, Tacoma 2, Wash. Southwestern Section, Hotel Sacramento, Sacramento, Calif., September 30-October 2; H. L. Gerber, secretary, 205 City Hall, San Francisco, Calif. Southern Section, George Vanderbilt Hotel, Asheville, N. C., October 14-16; A. M. Miller, secretary, 910 W. 30th St., Richmond 24, Va. Western Section, Gibson Hotel, Cincinnati, Ohio, October 21-23; F. H. Moore, secretary, 320 N. Meridian St., Indianapolis 9, Ind. Eastern Section, Mark Twain Hotel, Elmira, N. Y., October 28-30; F. N. M. Squires, secretary, 85 John St., New York 7, N. Y.

Indiana Electric Association—French Lick Springs Hotel, French Lick, Ind.., September 25-27. E. F. Hauser, secretary, 1414 Circle Tower, Indianapolis, Ind.

Municipal Electric Utilities Association of New York State—Annual conference, Mark Twain Hotel, Elmira, N. Y., September 25-27. T. J. McKee, secretary, 200-212 E. Third St., Jamestown, N. Y.

American Society of Mechanical Engineers—Fall meeting, Statler Hotel, Boston, Mass., September 30-October 2. Ernest Hartford, executive assistant secretary, 29 W. 39th St., New York 18, N. Y.

International Association of Electrical Leagues—Annual conference, Astor Hotel, New York, N. Y., October 2-4. O. C. Small, secretary, 155 E. 44th St., New York 17, N. Y.

Southeastern Electric Exchange—Engineering and Operation Section, Henry Grady Hotel, Atlanta, Ga., October 3-4; Accounting Section Fort Sumter Hotel, Charleston, S. C., October 17-18; Commercial Section. Atlanta Biltmore Hotel, Atlanta, Ga., November 6-9. J. W. Talley, executive secretary, 303 Haas-Howell Bldg., Atlanta 1, Ga.

National Electronic Conference—Second annual conference, Edgewater Beach Hotel, Chicago, Ill., October 3-5. E. H. Schulz, secretary, Illinois Institute of Technology, 3300 S. Federal St., Chicago 16, Ill.

Edison Electric Institute—Electrical equipment committee, New Ocean House, Swampscott, Mass., October 4-5; transmission and distribution committee, Cavalier Hotel, Virginia Beach, Va., October 7-8. Col. H. S. Bennion, managing director, 420 Lexington Ave., New York 17, N. Y.

American Institute of Electrical Engineers—Great Lakes District, Claypool Hotel, Indianapolis, Ind., October 9-11. H. H. Henline, secretary, 33 W. 39th St., New York 18, N. Y.

National Electrical Contractors Association—Annual meeting, Ritz Carlton Hotel, Atlantic City, N. J., October 14-18. C. J. Harder, national secretary, 633 Investment Bldg., Washington 5, D. C.

Electrochemical Society—Fall meeting, Royal York Hotel, Toronto, Canada, October 16-19. Colin G. Fink, secretary. Columbia University, 3000 Broadway, New York 27, N. Y.

Pennsylvania Electric Association—Electrical equipment committee, Lord Baltimore Hotel, Baltimore, Md., October 24-25; B. E. Hagy, chairman, Philadelphia Electric Co., 900 Sansom St., Philadelphia 5, Pa. Transmission and distribution committee, Abraham Lincoln Hotel, Reading, Pa., October 24-25; C. C. Farrell, vice-chairman, Philadelphia Electric Co., 900 Sansom St., Philadelphia 5, Pa. Meter committee, Benjamin Franklin Hotel, Philadelphia, Pa., November 7-8; R. A. Black, chairman, West Penn Power Co., Connellsville, Pa. Systems operation committee, Skytop Lodge, Pa., November 7-8; A. R. Deck, chairman, Metropolitan Edison Co., Reading, Pa.

American Welding Society—Annual meeting, New York, N. Y., October 24, and Atlantic City, N. J., November 17-22. M. M. Kelly, secretary, 33 W. 39th St., New York 18, N. Y.

RLM Standards Institute—Annual meeting, Brighton Hotel, Atlantic City, N. J., October 28.

National Electrical Manufacturers Association—Annual meeting, Traymore Hotel, Atlantic City, N. J., October 28-November 1. W. J. Donald, managing director, 155 E. 44th St., New York 17, N. Y.

National Farm Electrification Conference—Sherman Hotel, Chicago, Ill., November 7-8. G. W. Kable, chairman, *Electricity on the Farm*, 24 W. 40th St., New York 18, N. Y.

National Research Council—Conference on Electrical Insulation, Johns-Hopkins University, Baltimore, Md., November 7-9. W. F. Davidson, chairman, Consolidated Edison Co. of New York, Inc., 4 Irving Place, New York, N. Y.

National Association of Railroad and Utilities Commissioners—Annual meeting, New Orleans, La., November 12-15. Ben Smart, secretary, 7411 New Post Office Bldg., Washington, D. C.

PART TWO IN A SERIES ABOUT *Quality Craftsmanship*

Bushing Construction of

L-M Round-Wound Transformers

Insures complete protection against weather—eliminates oil siphoning—provides convenient, accessible external clamping.

The claim that L-M Round-Wound Transformers are built with Quality Craftsmanship is backed up with the kind of construction shown here. It is one of the reasons why you can "hang L-M Round-Wound Transformers on a pole and forget 'em". The construction features of L-M's Secondary Bushing show how this convenient, easily accessible bushing is made completely weather-tight and oil-tight.

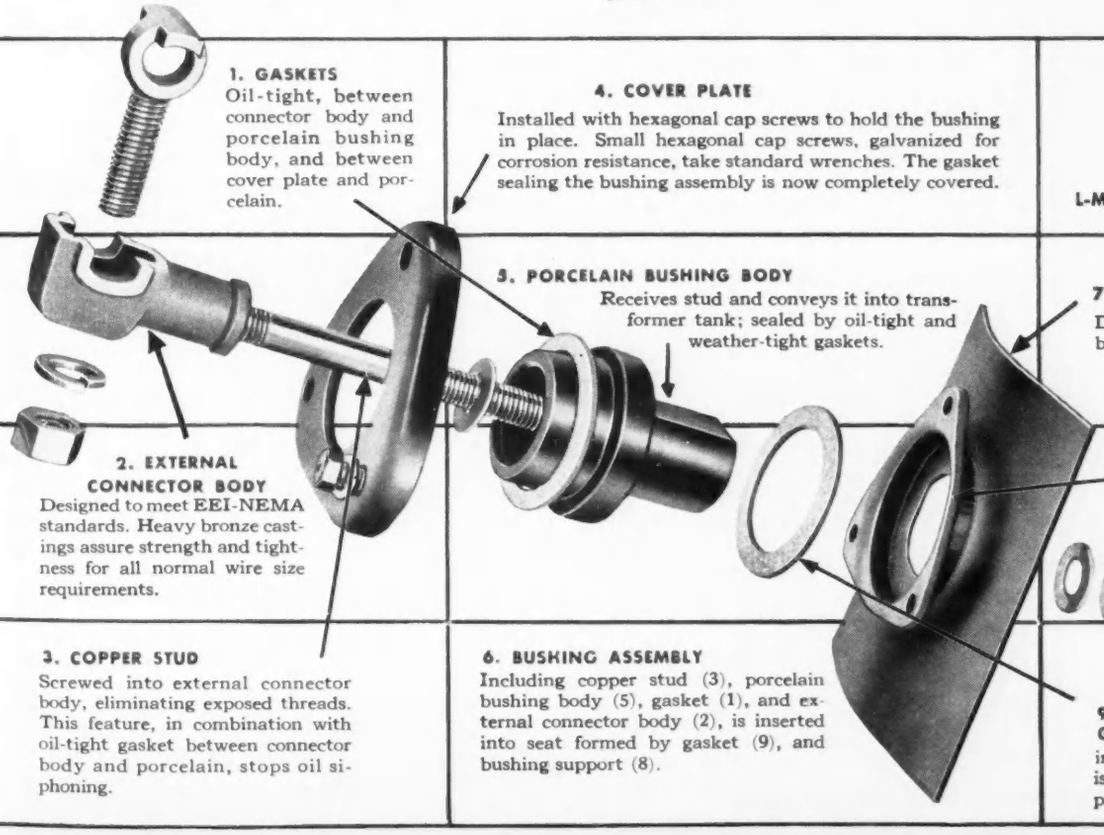
Before assembly to the transformer tank, L-M secondary bushings are pressure tested for leakage to be certain that all parts are air-tight. After the assembly illustrated here, L-M transformer tanks are placed in an inverted position with full pressure of the oil against the seals. In this test the slightest leakage can be detected.

L-M Round-Wound Transformers are made in 1½ to 25 Kva, in all distribution class voltages including 14,400 volts, and meet EEI-NEMA standards.

GET THE WHOLE STORY: ask the L-M Field Engineer for the facts on Round-Wound Transformers; or send for Bulletin RW-421. Write Line Material Company, Transformer Division, Zanesville, Ohio.

Bushing assembled with cutaway section of tank

L-M 25 Kva Round-Wound Transformer



1. GASKETS Oil-tight, between connector body and porcelain bushing body, and between cover plate and porcelain.

2. EXTERNAL CONNECTOR BODY Designed to meet EEI-NEMA standards. Heavy bronze castings assure strength and tightness for all normal wire size requirements.

3. COPPER STUD Screwed into external connector body, eliminating exposed threads. This feature, in combination with oil-tight gasket between connector body and porcelain, stops oil siphoning.

4. COVER PLATE Installed with hexagonal cap screws to hold the bushing in place. Small hexagonal cap screws, galvanized for corrosion resistance, take standard wrenches. The gasket sealing the bushing assembly is now completely covered.

5. PORCELAIN BUSHING BODY Receives stud and conveys it into transformer tank; sealed by oil-tight and weather-tight gaskets.

6. BUSHING ASSEMBLY Including copper stud (3), porcelain bushing body (5), gasket (1), and external connector body (2), is inserted into seat formed by gasket (9), and bushing support (8).

7. TANK SIDE WALL Die-punched and pressed flat for bushing gasket surfaces.

8. FLANGED BUSHING SUPPORT—Projection-welded to the tank wall.

Terminal lug

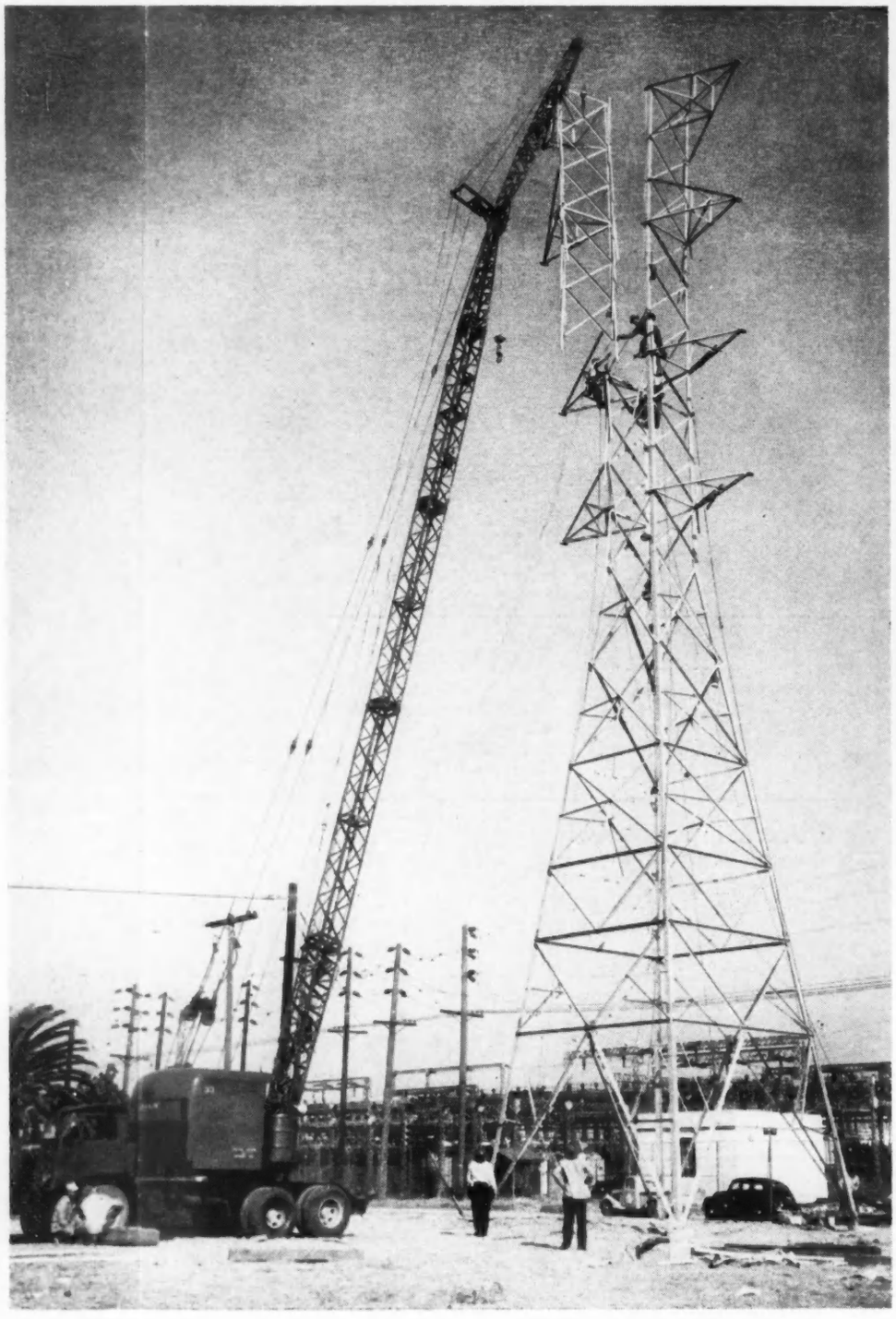
9. CORPRENE GASKET—Cushions and seals the bushing assembly to the tank wall. Gasket is seated in the bushing support and protected by it.

LM

LINE MATERIAL TRANSFORMERS

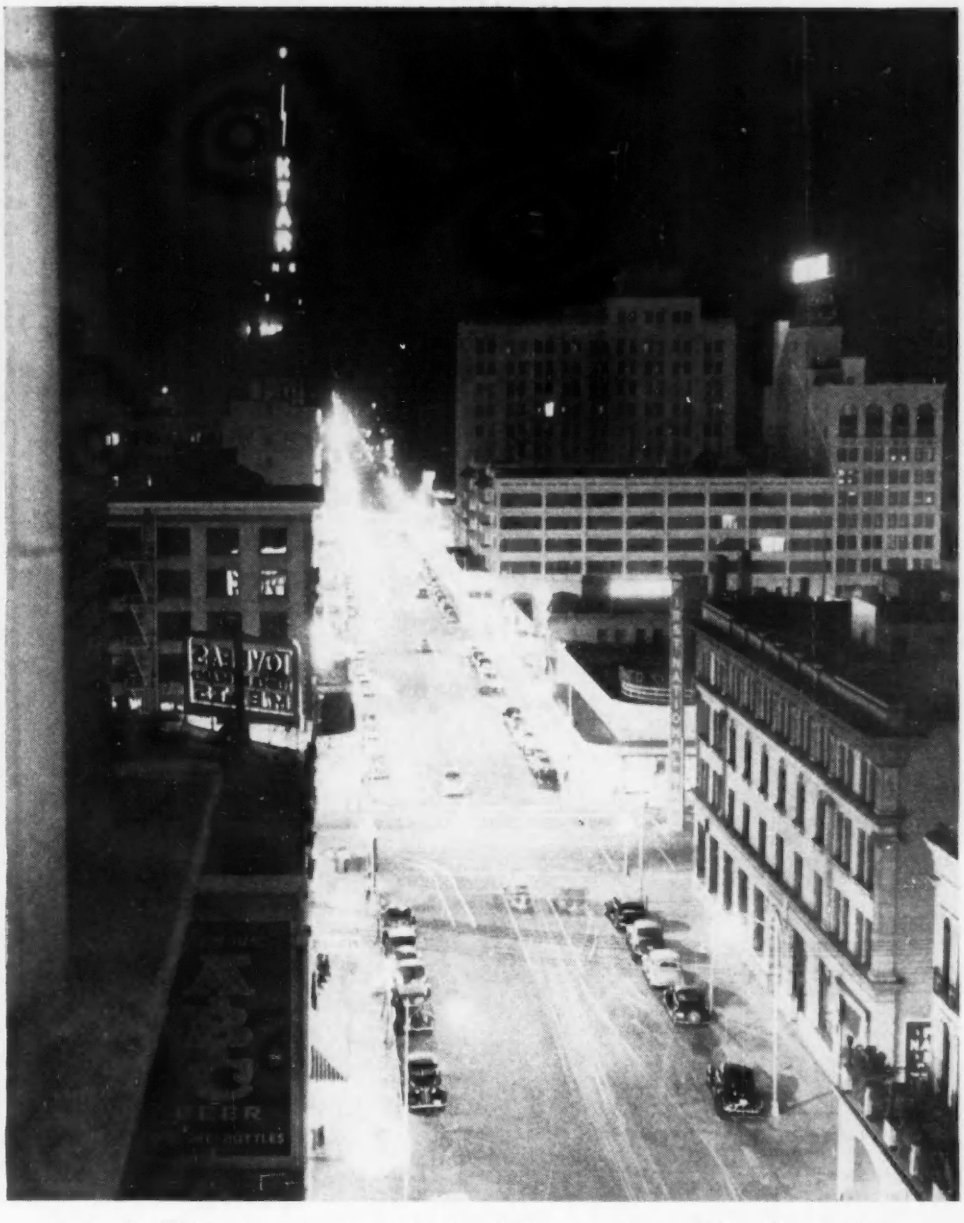
L-M DISTRIBUTION EQUIPMENT INCLUDES: Distribution Transformers • Fuse Cutouts and Fuse Links • Lightning Arresters • Oil Switches • Pole Line Hardware • Line Construction Specialties • Underground Equipment • Fibre Conduit • Street and Airport Lighting Equipment • Wired Radio Control Equipment • Capacitors

THE INDUSTRY IN PICTURES



LAST PIECE—A 120-ft. boom of the Los Angeles Water & Power Department hoists the last of eleven sections of a 115-ft. high transmission tower into place. The department pioneered the idea of assembling tower sections on the ground and then lifting them into place, first using this method on the third Boulder transmission line. The new 132-kv. line will make possible a 40-kw. increase in Boulder line transmission capability. The section, connecting receiving stations B and D, is the final link in a comprehensive loop line system which encircles the central portion of the city and will make possible power delivery from either of the two sources

OLD AND THE NEW IN PHOENIX—In a fiv
trict, Phoenix, Ariz., has installed a modern stre
standards. The 700-watt lamps, one to a stand
light as the old (above). The 30-ft. standards

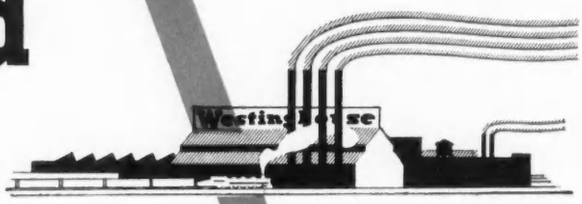


In a five-block section of its main business district, street lighting system consisting of 34 light standard, shed more than 14 times as much standards are nearly twice as high as those used previously. Thirty property owners in the district were persuaded to finance the construction. The city will operate and maintain the system. Plans are being made for an expansion of increased lighting throughout the downtown section for 14 blocks east and west and five blocks north and south

SERVICE FOR THE CONSUMER—Consolidated Gas, Electric Light & Power Co. of Baltimore is using this mobile capacitor unit, the first of its kind built by General Electric Co., to meet the demands of an industrial customer whose own power supply failed. The capacitor was connected at one of the utility's 750-kva., 33,000/4,150-volt rural substations

RHYTHM FOR LIFE SAVING—Employees of Arkansas Power & Light Co. are now practicing the prone pressure method of artificial respiration at their safety meetings to the accompaniment of recorded rhythm. Fred Fleming, left, and Francis Boyle look on as Wallace Thompson demonstrates the proper technique in time with the record. The three men wrote the script which was used to make three records explaining the technique of applying the method and containing five minutes of properly timed counting. The record player is taken around the company's system for practice sessions with the records

Assembled here . .



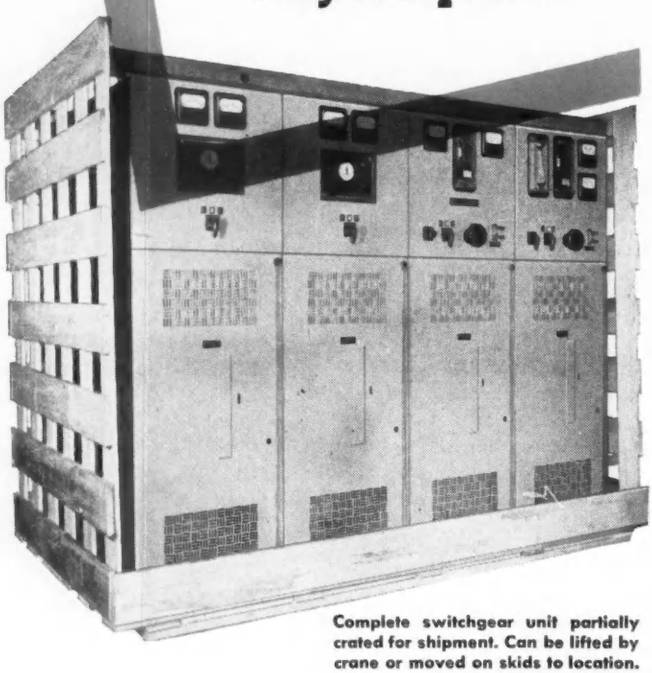
for economical installation in your plant

Assembled . . . wired . . . fully tested . . . and delivered as a unit! You only have to make connections to put Westinghouse "Unitized" Switchgear into immediate operation.

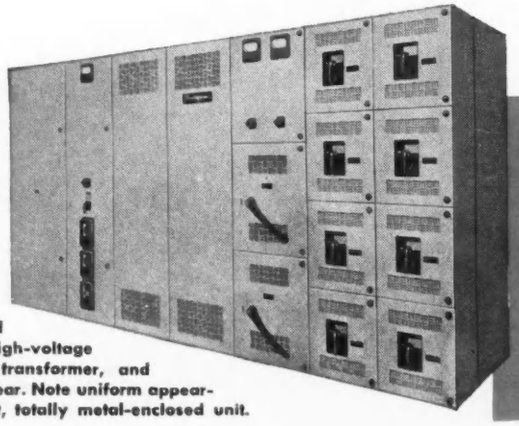
Various combinations of 10 basic units meet any requirement up to 600 volts . . . 6000 amperes . . . with interrupting capacity up to 100,000 amperes. The switchgear is completely enclosed in metal, self-supporting structures, but easily accessible for inspection or servicing.

Removable, drawout-type air circuit breakers are enclosed in separate compartments, with doors which are interlocked to prevent opening while breaker is closed. Extension rails and lifting irons are furnished for ease of maintenance. Interchangeability of breakers improves continuity of service. Any breaker can be replaced with a similar reserve breaker or with a breaker from some less important circuit.

While there are standard specifications for each basic unit, there are many optional arrangements and equipment. This information and complete details about Westinghouse "Unitized" Low-Voltage Switchgear is given in Booklet B-2296-B. Write for your copy. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-60641



Complete switchgear unit partially crated for shipment. Can be lifted by crane or moved on skids to location.



A 750-kva, indoor, close-coupled power center with high-voltage switchgear, power transformer, and low-voltage switchgear. Note uniform appearance of the compact, totally metal-enclosed unit.

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

"UNITIZED" SWITCHGEAR

Union County P.U.D. Move to Finance Seizure Halted

Attempts to combine an Oregon REA cooperative with a public utility district in order to raise the money necessary to condemn and purchase properties of Eastern Oregon Light & Power Co., were halted last week when Circuit Judge James W. Crawford, Multnomah County ruled this an attempt to do indirectly what the P.U.D. was not legally permitted to do directly.

With a $925,000 bond issue approved by Union County voters in 1942, Union County P.U.D. officials needed more money to meet the purchase price of $1,256,000 set on the property. In attempting to do this they planned to use the bond issue money to buy facilities in the city of La Grande, and to make an REA loan to purchase those in the remainder of the county. Three suits were brought claiming this procedure to be illegal, which claim the court has now upheld.

Since the Union County P.U.D.'s option on the system expired August 15. California-Pacific Utilities Co. recent purchasers of Eastern Oregon under agreement to sell a portion to the P.U.D., will proceed to make application to the California Railroad Commission to issue securities to complete the transaction. A similar request had previously been turned down because of a recent California ruling which requires competitive bidding on issues over $1,000,000.

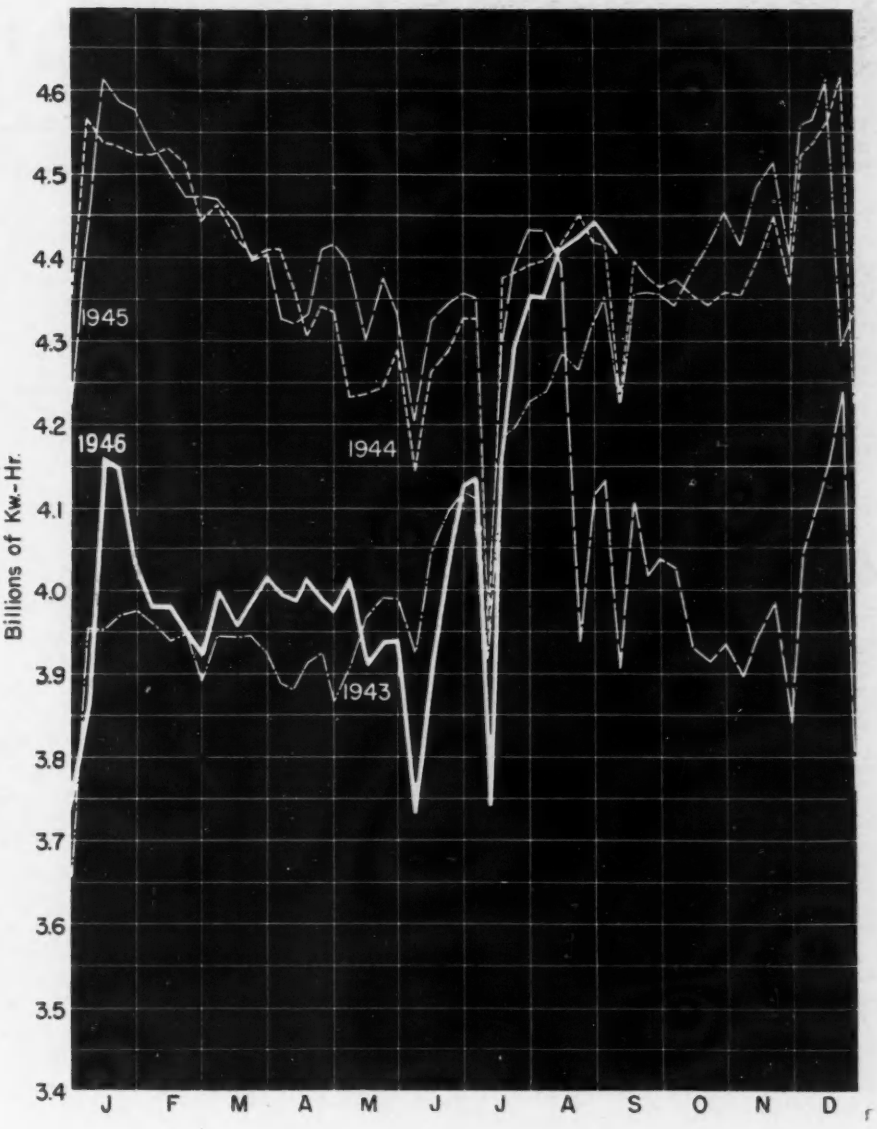
Free Electricity for Schools

Ohio municipalities owning water works and electric plants may furnish free water and electricity to a public school district within the municipality. Attorney General Hugh S. Jenkins has ruled.

UTILITY REPORTS

	Net Income 1946	1945
†American Gas & Electric and subs	$15,710,575	$12,383,252
†Cincinnati Gas & Electric and subs	4,697,742	4,077,043
†Cleveland Electric Illuminating and subs	6,696,088	5,736,394
†Columbus & Southern Ohio Electric	4,399,987	3,005,643
*Connecticut Light & Power	3,887,245	3,418,007
*Houston Lighting & Power	3,272,200	3,211,911
*Iowa Public Service	923,995	651,549
†Kentucky Utilities and subs	1,689,284	1,550,520
†Louisville Gas & Electric (Ky.) and subs	3,276,140	2,681,799
*Sioux City Gas & Electric	809,713	665,307
†Union Electric (Mo.) and subs	9,864,806	9,730,075
†West Penn Power and subs	6,275,166	7,917,823

*Twelve months ended July 31.
†Twelve months ended June 30.



Week's Output Lower; Holds Lead Over '45

Electrical energy distributed by the light and power industry during the week ended August 31, 1946, turned downward, according to figures released by the Edison Electric Institute, reversing the upward trend which had been unbroken since the first week in August.

Output totaled 4,404,192,000 kw.-hr., compared with 4,444,040,000 kw.-hr., for the week ending August 24. The amount of electrical energy distributed during the corresponding week of 1945, that of September 1, amounted to 4,137,313,000 kw.-hr., this year's figure representing an increase of 6.5 percent.

All sections of the country again showed increases over the corresponding week of 1945. The largest individual gain was reported by the New England States, 9.4 percent. The Rocky Mountain group's increase of 6.8 percent for the week ended August 24 was cut to a gain of 0.4 percent for the week ended August 31.

Weekly Output, Millions Kw.-Hr.

1946		1945		1944	
Aug. 31	4,404	Sept. 1	4,137	Sept. 2	4,415
Aug. 24	4,444	Aug. 25	4,116	Aug. 26	4,418
Aug. 17	4,422	Aug. 18	3,939	Aug. 19	4,451
Aug. 10	4,412	Aug. 11	4,395	Aug. 12	4,415
Aug. 3	4,351	Aug. 4	4,432	Aug. 5	4,399
July 27	4,352	July 28	4,435	July 29	4,391
July 20	4,293	July 21	4,385	July 22	4,381
July 13	4,156	July 14	4,295	July 15	4,377
July 6	3,741	July 7	3,978	July 8	3,941
June 29	4,133	June 30	4,353	July 1	4,327
June 22	4,129	June 23	4,358	June 24	4,325
June 15	4,030	June 16	4,348	June 17	4,287
June 8	3,920	June 9	4,327	June 10	4,265

Percent Change from Previous Year

	Aug. 31	Aug. 24	Aug. 17
New England	+ 9.4	+11.2	+25.9
Mid-Atlantic	+ 5.8	+ 7.2	+13.8
Central Industrial	+ 8.6	+10.4	+15.6
West Central	+ 7.3	+11.9	+11.7
Southern States	+ 7.0	+ 6.6	+ 7.9
Rocky Mountain	+ 0.4	+ 6.8	+15.4
Pacific Coast	+ 3.5	+ 4.4	+ 7.3
Total United States.	+ 6.5	+ 8.0	+12.3

MANUFACTURERS & MARKETS

Electrical Workers' Pay Up; Hours Down

	May 1946	April 1946	March 1946	May 1945
Average Earnings, Weekly, $	45.66	44.04	41.32	50.90
% of May, 1946	100.0	96.5	90.5	111.5
% of April, 1946	103.9	100.0	93.4	115.5
% of March, 1946	110.5	106.6	100.0	123.2
% of May, 1945	89.7	86.5	81.2	100.0
Average Earnings, Hourly, Cents	117.0	110.3	103.0	111.5
% of May, 1946	100.0	94.3	88.0	95.3
% of April, 1946	106.1	100.0	93.0	101.0
% of March, 1946	113.6	106.7	100.0	108.2
% of May, 1945	104.9	98.9	92.4	100.0
Average Hours Worked, Weekly	39.1	39.8	40.1	46.0
% of May, 1946	100.0	101.2	102.6	117.6
% of April, 1946	98.2	100.0	100.8	115.6
% of March, 1946	97.5	99.3	100.0	112.2
% of May, 1945	85.2	86.5	87.1	100.0

Weekly pay checks of electrical equipment manufacturers' employees continue to climb, as indicated in the accompanying table. The figures derived from Bureau of Labor Statistics latest available data show the May average to be $45.66. This compares with $41.32 in March, the month in which the wage increase era began in the industry. The following two months brought about a 10.5 percent increase in the employee's pay envelope.

The hourly rate during these two months increased from $1.03 to $1.17 and represents a 13.6 percent boost. The percentage increase of the paycheck is less than the percentage increase of the hourly rate, since the average work week is shorter. The table shows that workers are now "putting in" 97.5 percent as much time and obtaining 110.5 percent comparable pay.

When comparing the May, 1946, figures with the May, 1945, figures, the table indicates that the workers are in the plant 85.2 percent as long and are obtaining 89.7 percent as much pay. In 1945 the employee labored an average of 46 hours, received an average of $1.11½ per hour, and was credited with earning $50.90. In 1946, he was in the plant 6.9 hours less (a total of 39.1 hours), was receiving 5.5 cents per hour more (rate up to $1.17) and was receiving a $45.66 pay check.

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G. E. Stockholders—375,000

With the addition of 7,210 individuals and businesses to General Electric Co.'s list of stockholders during the last twelve months, the number of stockholders in the company has passed 375,000, W. W. Trench, secretary, has reported. This figure, reached on June 21, record date for dividends payable July 25, includes more than 130,000 employees.

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Maxson Corp. Acquires Victor Electric Products

Victor Electric Products, Inc., Cincinnati, manufacturer of the Victron line of electric desk and pedestal fans, ventilating fans, ironers and fractional horsepower motors, has been acquired through an interchange of stocks, by the W. L. Maxson Corp., New York, according to the joint announcement by William L. Maxson, president of W. L. Maxson Corp., and Charles L. Harrison, president of the Victor company.

There will be no change in Victor management, name or personnel and the company's expansion program toward a wider variety of electrical appliance products will continue. Mr. Harrison remains as president of Victor, T. R. Harris as vice-president and general manager, and Leslie E. Gaut as vice-president and general sales manager.

Victor Electric occupies its own modern factory in Cincinnati to which an addition, to be ready for immediate occupancy, will aggregate 116,000 sq. ft., of floor space. In addition to expanding its present line of products, the Victor factory will also produce new devices developed by the Maxson Corp.

In addition to the Victor Cincinnati plant, other Maxson factories are located in Connecticut, New Jersey and Long Island. The creative and engineering staffs of both companies will collaborate on developments in the electro-mechanical field, several of which will shortly be ready for marketing.

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Infralectric Radiant Heater Corporation Organized

Formation of the Infralectric Radiant Heater Corp. by the Radiant Heater Corp. of New York and the F. L. Jacobs Co. of Detroit, Mich., has been announced by Rex C. Jacobs, president of the F. L. Jacobs Co. The new company is owned jointly by Radiant Heater and F. L. Jacobs Co.

Infralectric will handle the sales of a new type of permanent, electric, home-heating units with glass as the basic element. In addition, a combination portable heating unit and tray will be distributed through the network of distributors and 5,000 dealers who now merchandise the Launderall.

Both units will be manufactured by the F. L. Jacobs Co. exclusively and will be made in one of the company's existing plants. Mr. Jacobs said he anticipates production of infralectric heaters by the first of next year. Infralectric will make its home office in the main plant of the F. L. Jacobs Co., 1043 Spruce St., Detroit 1, Mich. Basil A. Needham has been elected president of Infralectric in addition to holding that office in the Radiant Heater Corp.

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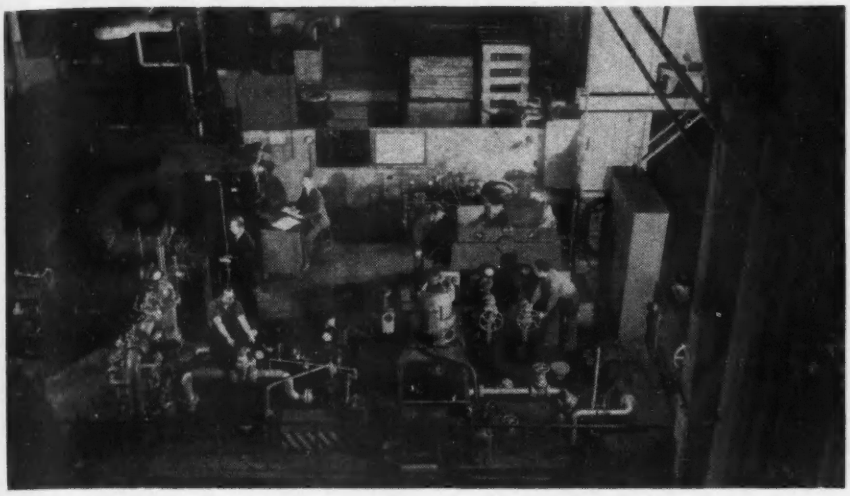
Arc Lamp Parts Manufacture Will Cease at G.E.

Arc street lighting systems are being replaced with incandescent systems so rapidly that the General Electric Co. has planned to cease manufacturing electrodes and replacement parts. Utilities and municipalities now using arc lights have been informed and no new orders for these materials will be accepted after September 30. The orders then in hand will be processed in the department at the Lynn (Mass.) plant, which will then be shut down.

Allis-Chalmers Improves Testing Facilities



O.K., VALVES OPEN—Starting one of the first tests on the Allis-Chalmers newly improved steam turbine auxiliary test floor

Improved testing and laboratory facilities for a variety of its industrial and marine products have been made in recent months by the Allis-Chalmers Mfg. Co., Milwaukee, Wis. Among these are a new "shock-test" laboratory developed in cooperation with the Navy during the war, a new electronic processing laboratory and a new steam turbine auxiliary test floor.

The "shock-test" laboratory is available to the company's engineering staffs for testing materials and devices likely to be subjected to extremely harsh treatment in service. It is equipped to handle high-impact shock, vibrating, humidity and temperature, salt spray, and electrical and mechanical life tests. The shock tests consist of subjecting the product to different mounting positions in a special high-impact shock machine capable of handling devices up to 4,500 lb. and having a shock blow capacity of 18,000 ft.-lb. By giving the shock in various directions, subsequent visual inspection and operating devices provide positive evidence of the strength of the product being tested.

The new electronic processing laboratory is devoted exclusively to the analysis and processing of samples and the design of proper coils for production work for present and prospective users of the company's induction heating equipment. Equipped with standard Allis-Chalmers heating units, the laboratory also provides improved facilities for those wishing to visit the plant to observe tests on their own products.

The new steam turbine auxiliary test floor has been built to test main oil pumps, auxiliary oil pumps, governor and oil pump driving gears, governors and regulators of various types under conditions more severe than found during operation in service, permitting advance disclosure of possible design or structural weaknesses. Conveniently arranged to suit all manner of tests are special rigs for mounting auxiliaries for operation; complete steam, water, oil, compressed air and electrical supply, adequate for the many variable ratings and conditions; oil tanks, condensers, weighing tanks, motors, etc. Elaborate instrumentation includes electrical measuring apparatus and central control board.

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Independent Union Retained

The Selco independent union which has been the bargaining agency for production and maintenance employees of the Sangamo Electric Co., Springfield, Ill., for the last nine years, has retained its status in a recently held election. The Selco union received 811 of the 1,566 votes cast; The United Electrical, Radio & Machine Workers of America, C. I. O., 637; and the International Brotherhood of Electrical Workers, A. F. L., 110.

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Manufacturers Issue Earnings Reports

Electrical manufacturing companies have recently issued the following earnings statements:

McGRAW ELECTRIC—Twelve months ended June 30, net profit, $960,605, or $2.03 a share, against $930,943, or $1.97 a share, in preceding twelve months.

SCOVILL MANUFACTURING—Six months, consolidated net income, $283,415, equal to 27 cents each on 1,046,838 common shares; net sales, $25,125,888.

HOLOPHANE—Year to June 30, net income $275,567, equal to $2.80 a common share, comparing with $171,326, or $1.72 a common share.

NQMA—Sales, including subsidiaries, during July totaled $2,912,000, which compared with average monthly sales of $1,567,000 during the first six months of this year, Henri Sadacca, president, announced. Total sales for the seven months through July were $12,316,000. "While no fair comparison of these figures with corresponding previous periods is possible in view of our substantial expansion, it is significant that July sales actually exceeded our expectations by $212,000," Mr. Sadacca stated.

Electrical Cash Exports Up; Lend-Lease Down

The year 1946 is seeing an increase in the amount of electrical apparatus and materials being sold in the export market on a cash purchase basis and a decrease in the amount going abroad on lend-lease. Total dollar figures, however, have not changed materially.

In January the value of the exports listed in the table totalled $54,909,000, while the May figures aggregate $52,908,000. The goods sold for cash increased from $27,396,000 in January to $33,494,000 in May. Although the total May sales decreased only 3.6 percent, the apparatus delivered for cash increased from 50 percent to 62½ percent; lend-lease decreased from 50 to 37½.

The lend-lease figures during the same two months decreased from $27,477,000, or 50 percent, of the total sales to $18,535,000, or 37½ percent.

Copper products reflect the shortage of this basic material in the United States. The exports in May were approximately one-third of those in January. This decrease, however, was all in the cash sales since the lend-lease exports increased 252,000 lb.

		Value in $1,000 Jan.	May
Electrical Machinery, value		24,054	24,232
Cash-purchase		14,888	19,014
Lend-lease		9,136	4,938
Generators, value		5,483	5,958
Cash-purchase		2,181	3,191
Lend-lease		3,296	2,540
Motors, Starters, value		3,824	2,288
Cash-purchase		1,445	1,226
Lend-lease		2,379	1,048
Engines, Turbines, value		19,936	18,252
Cash-purchase		7,270	7,885
Lend-lease		12,666	10,009
Refrigerators and Parts, value		1,171	1,371
Electric Appliances		441	807
Copper Products	In 1,000 lb.	24,858	8,452
Cash purchase	In 1,000 lb.	23,307	6,667
Lend-lease	In 1,000 lb.	1,496	1,748

FIELD REPORTS ON BUSINESS

Some of the shortages in materials are easing slightly in the East. Distribution transformers are in urgent demand. Motor shortages are delaying the reconversion program in some areas, but are in better supply in others.

PACIFIC COAST

The major product of Pacific Coast electrical factories and certainly the one in most urgent demand is distribution transformers, keystone of a great service extension program, especially in rural areas. Coast assembly production is dependent upon component parts from eastern factories which are themselves hampered by raw material shortages, so that a year is no unusual delivery. Recent orders reflect various phases of this system expansion ranging from $50,000 of pole line clevises to $140,000 of regulators and $375,000 of circuit breakers for a northern California utility.

Other machinery orders include $165,000 of rewound costs for generators of San Francisco municipal power plant and $80,000 capacitor equipment for electrolytic work of Dow Chemical at Pittsburg. Recent price advances on electrical wiring porcelains are not greatly affecting the coast despite the higher freight on such dead weight material because knobs, cleats and tubes have been almost unavailable for months, and in some areas have been largely replaced on rush jobs by flexible conduit.

Floodlights and cables for athletic fields are in heavy demand, so much so that the reserve stocks of floodlights left over from sudden cessation of war demand have been exhausted.

Industrial developments include $2,500,000 award by Tidewater Associated Oil for a group of structures of which distillation building is nucleus; bottling plants of $1,000,000 each for Pepsi-Cola at Los Angeles and Schenley Distilleries at Phoenix.

NEW ENGLAND

Motor shortages are delaying reconversion and modernization programs in New England. Inquiries and orders from the textile field are heavy but deliveries are lagging. The War Assets Administration has thrown 1,800 one-sixtieth hp. and 1,500 one-hundredth hp. motors on the market. They are quoted at $7.63 and $10.06 respectively at the Naval Storehouse, Hingham, Mass.

More generation capacity is being added at Braintree (Mass.) Municipal Lighting Department. The new B&W 750,000 lb. per hr., 450-psi. boiler is now being installed and the plant is being enlarged to accommodate another generator.

Building permits are down in number because of material shortages which are hampering normal wiring activities. However, restaurant modernization and theatre marquee lighting are absorbing electrical supplies and are being completed.

Activities among distributors in sales promotion are increasing. Eastern Co., Cambridge, Mass., has opened a new branch in Worcester and Allied Appliance Co. has opened expanded facilities at 111 Berkeley St., Boston, for distributing activities and dealer sales, service and training. These include display rooms with 75 foot-candle illumination level and set-up among retail store lines for demonstration.

NEW YORK

Some of the shortages in materials are easing slightly in the eastern markets. Copper is in much better supply but is far from plentiful. It began to ease about August 1 because of the large allotments made from the government stock pile. Although this eased the wire bar situation for the time being, it has created shortages in the brass fields. Steel inventories are also in better condition but serious shortages are looked for later in the fall.

Motors are in better supply. Motor manufacturers shipped approximately 20 percent more motors last month than in July. The great percentage of this gain was in fractionals. Several of these manufacturers are just getting under way in volume production and continued increased output is anticipated for the next eight to ten months.

One of the main reasons for this increase is the better distribution of parts and materials in inventory. One manufacturer stated that for the first time since V-J Day, he had materials enough to run the plant for a 30-day period without a shortage.

Theatres continue their improvement "spree." Several are modernizing their marquees and, in one instance, photoelectric cells will be used to "advertise its wares."

CHICAGO

Radio manufacturers in this area report a decided stepping up of output during July and August, as some of the chief bottlenecks eased. Significant shortages still exist, however, in such items as copper, tubes and cabinets.

Rural Electrification Administration has made five allotments in this area recently, the largest, $720,000 to Shelby Electrical Corp., Shelbyville, Ill., for line construction purposes. A $565,000 grant was given the Illinois Rural Electric Co., Winchester, for generating facilities. Clay Electric Cooperative, Flora, Ill., was allotted $200,000 and Southern Indiana Rural Electric Cooperative, Tell City, $85,000.

Hyre Electric Co. has moved into a new building and has increased illumination up to the 100-foot-candle level. A $600,000 expansion program is under way at the Bloomington, Ill., plant of Eureka Williams Corp., to increase the output of vacuum cleaners, cordless electric irons, and a new waste food disposal unit.

Color television broadcasting is nearly ready in Chicago. The Columbia system will complete its station early in 1947 and will be ready for commercial broadcasting as soon as FCC permission is obtained. The radius of the station will be 30 to 40 miles.

Manufacturers Make Sales Assignments

Electrical manufacturing companies have recently announced the following appointments to their sales staffs:

COOKE & FERGUSON, LTD., Manchester, England, have acquired manufacturing and distribution rights for Nelson automatic stud welding equipment and flux-filled studs in the British Isles, according to an announcement by Ted Nelson, head of Nelson enterprises in the United States. Arrangements recently completed by Charles C. Henderson, representing Cooke & Ferguson, call for the establishment of complete manufacturing facilities at the firm's headquarters at Victoria St., Openshaw, Manchester. Complete application engineering, sales and service facilities will be provided throughout the British Isles. The area has been divided into four territories, and a field engineering staff, patterned after the Nelson field engineering organization in the United States, will be created to cover all territories. Cooke & Ferguson, Ltd., are electrical welding engineers and manufacturers with long experience in the field.

PROCTOR ELECTRIC CO. has appointed Maurice F. Moriarty Florida district manager. He replaces the late Frank C. Barrington. Mr. Moriarty joined Proctor in 1944 as a member of the executive staff at Philadelphia headquarters.

GRAYBAR ELECTRIC CO. has named John P. Lawton northwestern district manager with headquarters in Seattle, Wash. Mr. Lawton has served as district sales manager since 1944.

JOHN S. BARNES CORP., Rockford, Ill., has placed E. C. Hawkins in charge of the Chicago branch office with headquarters at 135 South LaSalle St. Mr. Hawkins has been manager of the company's eastern sales office at Newark, N. J., for several years.

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Receivers Made In June Exceed Pre-War Average

More than 5,000,000 radio receivers were produced during the first six months of 1946, according to estimates of the Radio Manufacturers Association.

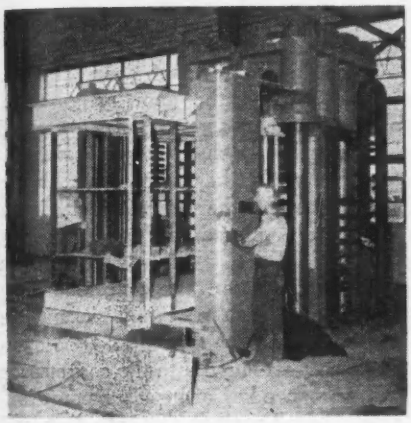
Production in June exceeded the industry's pre-war monthly average, according to R.M.A., although still short of capacity. The report showed that 1,052,597 sets of all types produced during June compared with 1,100,000 monthly average in 1941. The current total does not include production of a number of newcomers in the radio industry, R.M.A. stated.

Production of FM sets shows a steady gain, reaching 17,273 in June. Based on incomplete figures, indications are that approximately 5.5 million radio sets were produced from January through June.

New Plant Producing Large Laminated Sheets

Initial production of laminated plastic sheets was started on August 1 in General Electric's new $5,000,000 plant in Coshocton, Ohio. The new plant will replace the company's present facilities for producing laminating materials at Lynn, Mass.

When completed, the plant will consist of three buildings with the main



TOOLING-UP — Installing the 5,000-ton press preparatory to producing 50- x 100-in. laminated plastic sheets

production unit encompassing 235,820 sq. ft. It is expected to have an ultimate capacity of twice the present facilities. The two smaller buildings will be used for the manufacture of laminating varnish for the generation of steam.

The largest press in the plant will be a 5,000-ton unit capable of producing laminated sheets 50 x 100 in. Another giant press will form 30 x 100-in. sheets and more than 100 presses will be installed to produce sheets of smaller dimensions.

The plant will be served from two 5,000-kva. units in the substation and will consume approximately the same amount of water as the 12,500 Coshocton inhabitants.

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Initial Public Offering of Edison Shares Made

For the first time since the organization of the company by the late Thomas A. Edison, shares in Thomas A. Edison, Inc., were offered to the general public recently. The offering comprising 110,000 shares of non-voting Class B common stock, par value $3.33⅓, was made at $22 per share.

The shares offered represent part of the holdings of Mrs. Mina M. Edison, widow of the inventor, and his two sons, Charles and Theodore M. Edison.

SALES OPPORTUNITIES

INDIANA—Indiana Service Corp., Fort Wayne, plans large power substation on local site, in connection with transmission line extensions, including new 132,000-volt line in area north of city limits, and 34,000-volt line in district south of city. Latter transmission line also will be extended in certain parts of municipality. Entire project estimated to cost close to $1,000,000. Proposed to begin work soon.

KENTUCKY — Brown-Forman Distillers Corp., 1908 Howard St., Louisville, plans new bottling plant on Dixie Hy., near Garland Ave., comprising group of six main buildings, with six-story structure for main bottling unit. Machinery and electrical equipment will be installed for large capacity. Four eight-story buildings will be erected for bulk storage, distribution, etc. A power plant will be built. Entire project estimated to cost about $2,800,000. Bids for construction will be asked soon. Joseph & Joseph, 647 South Third St., Louisville, are architects.

CALIFORNIA—City Council, Burbank, will receive bids until 7:30 p.m., September 17 for furnishing twelve oil circuit breakers, as per specifications on file at office of Public Service Department, 174 West Magnolia Blvd. (Specifications 366).

MARYLAND—Congoleum-Nairn, Inc., 195 Belgrove Dr., Kearny, N. J., has plans for one and multi-story addition to felt mill at Cedarhurst, with machinery and electrical equipment. Cost estimated about $1,000,000. Work will begin soon, with completion scheduled next spring. Company also has work in progress on three large buildings at main plant, first noted address, to cost approximately $3,000,000, with machinery and electrical equipment.

MONTANA—Bureau of Reclamation, Denver, Colo., will receive bids until October 7 for 2,300-volt motor-control equipment, for installation in Fallon pumping plant, Buffalo Rapids project, Mont. Equipment will be installed by government (Specifications 1473).

WASHINGTON—Northwestern Electric Co., Vancouver, has approved plans for extensions and improvements in transmission and distribution lines in city area, including re-routing of several lines. Also will make extensions in West power substation, with installation of new 66,000-volt oil circuit breakers and other equipment. Entire project is estimated to cost about $200,000, and will be placed under way at once.

ARIZONA—Bureau of Reclamation, Denver, Colo., will receive bids until September 16 (postponed from August 8) for carrier-current telephone equipment for Parker power plant, points on All-American Canal, and power substations at Phoenix, Gila and Yuma, comprising Parker Dam power project, All-American Canal project, Davis Dam project, and Gila project, Arizona-California-Nevada. Equipment will be installed by government (Specifications 1404).

MONTANA—Carter Oil Co., National Bank of Tulsa Building, Tulsa, Okla., plans new oil refinery at Billings, comprising several multi-story units for gasoline and lubricating oil production, with processing machinery and electrical equipment for heavy output. Refinery will have facilities for handling about 18,000 bbl. crude oil daily, and will include power plant, pumping station and other service units. Cost estimated close to $8,000,000. Proposed to begin work before end of this year. Company is a subsidiary of Standard Oil Co. of N. J., New York, N. Y.

ARIZONA—Bureau of Reclamation, Denver, Colo., will receive bids until October 7 for one four-panel extension to present main control board in Parker power plant, consisting of front vertical sections, rear vertical sections, bench section, apron, top cover plate, etc., complete with instruments and wiring, Davis Dam project, Arizona-Nevada. Equipment will be installed by government (Specifications 1470).

CONNECTICUT—Bassick Co., 38 Austin St., Bridgeport, casters, automobile hardware, etc., has acquired former war-time plant of Vought-Sikorsky Division, United Aircraft Corp., on South Ave., Bridgeport, consisting of group of eleven buildings, about 250,000 sq. ft. floor space, on 8-acre tract of land, and will improve and expand for new factory; additional buildings, approximating 70,000 sq. ft. floor area will be erected. Present plant will be removed to new location, with installation of machinery and electrical equipment for large increased capacity. Entire project will cost about $2,500,000. Work will be placed under way at once. Company is a subsidiary of Stewart-Warner Corp., 1828 West Diversey Ave., Chicago, Ill.

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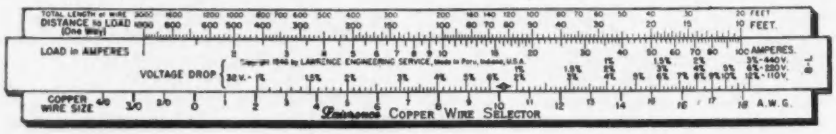
Install New Test Equipment in RCA Lancaster Plant

Two new and highly specialized transmitting tube test installations, for complete static and oscillator testing of high-power tubes for broadcasting and industrial applications have been installed in the Radio Corp. of America's tube plant at Lancaster, Pa., it was announced recently by L. W. Teegarden, vice-president in charge of the RCA tube department.

The new test equipment, designed and manufactured by the company's engineering products department, is housed in two separate units. One unit is capable of testing tubes with input ratings up to 150 kw. at 1.5 Mc. The second will test tubes with a maximum of 300 kw. input at 25 Mc. Power for these units is supplied by rectifiers delivering 300 kw. at 20,000 volts.

NEW EQUIPMENT

Slide-Rule Type Calculator Selects Proper Conductor Size



A COPPER wire selector, a slide-rule type calculator for determining the proper size conductor to be used for any load (1 to 100 amp.), at any distance from the load center (10 to 1,000 ft.), for 32-, 110-, 220-, and 440-volt lines, has been announced by the Lawrence Engineering Service, 47 North Lindwood Ave., Peru, Ind.

In determining the proper wire size, the ampere load to be carried by the conductor is set opposite the distance in feet between the load and the load center. The correct copper wire size will be found under the proper voltage designation, taking percent voltage drop into consideration.

The back of the calculator contains tables of wire capacities, motor ratings, etc.

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Interlocks Made for Base and Back Mounting

A NEW FAMILY of recently redesigned key interlocks is being announced by the Railway & Industrial Engineering Co., Greensburg, Pa. To form the interlock system, two or more of the desired interlock units are applied to two or more movable devices, such as handles, valves, doors, plates, shafts, etc. They are designed to prevent or allow a movement of one part only when another part is locked in a predetermined position.

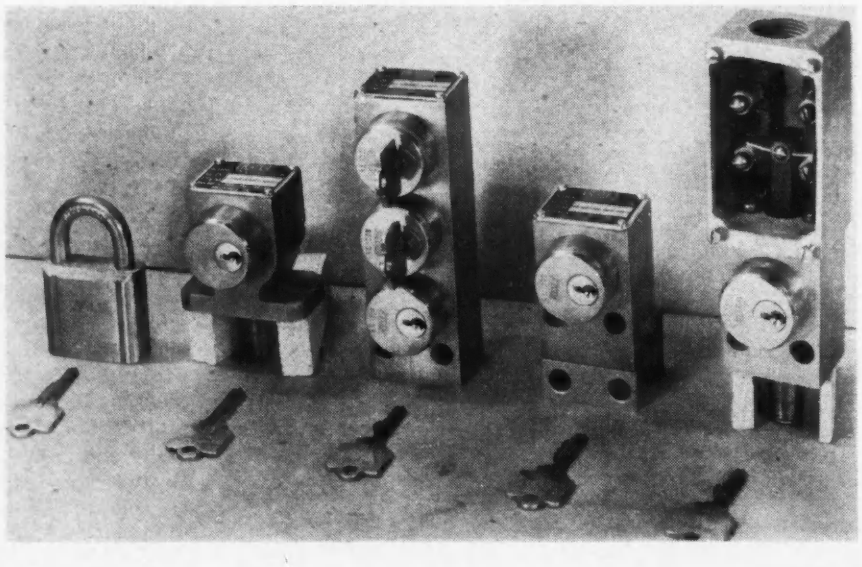
A key interchange number is marked on all interlocks that make up a sequence system, and the keys required carry the same number. The system is applicable to simple or complex operations. Illustrated, left to right, are types P, B, T, D and F with a type S auxiliary switch.

The padlock, type P, has a cast bronze housing; a 6-pin tumbler, case-hardened steel, cadmium-plated shank. Type B is available for single and multi-lock use. The housing is likewise cast bronze. It is designed for mounting through flanges on the base by means of hex head tap bolts. It is used where width of mounting base is limited.

Type T, transfer locks, are all multi-lock and are made in two forms—2, 3 and 4 key and 5, 6, 7, 8, 9, 10, 11 and 12 key. The transfer lock housing is made of commercial bronze stock and is designed for mounting with filister head tap bolts. The 2–4 key form uses two mounting bolts and the 5–12 key form uses four mounting bolts. The operating bolt does not extend through the base as is the case with type B or F interlocks.

Type D is a form of door interlock system. When the door or guard is open the operating bolt is prevented by concealed latch pins from being extended by the key used in sequence operations and the key obtained. When the door is closed and positioned by the guide cones on the socket, pins on the socket part engage concealed latch pins in the lock part and permit the inserted key to be turned and the operating bolt extended into the socket part. The sequence key or keys are now available. The housings for both lock and socket parts are made of commercial bronze bar stock. Mounting is made with filister head tap bolts.

Type F is narrower than B and permits it to be used where mounting widths are not sufficient for the latter type. It is likewise mounted with filister bolts. Also shown with the type F is a type S auxiliary switch. This has a ¾-in. conduit opening and will accommodate two circuits. The switch with its enclosure is normally mounted with the cover in front or on the same side as the locks. This combination, however, can be supplied with the switch and cover reversed.



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4500-White Available In Complete Fluorescent Line

THE COMPLETE LINE of General Electric fluorescent lamps is now available in the new 4500-white color, it has been announced by the company's lamp department at Cleveland headquarters. The 4500-white color was announced late last year by G. E. in 40-watt and 100-watt size fluorescent lamps. Popularity of the color has led to its being included in all sizes, officials state.

The new color has characteristics which are a balance between the present white and the daylight colors, lighting engineers at Nela Park say. The color is described as being sufficiently near daylight to meet ordinary needs for color discrimination, and is at the same time warm enough in tone to be pleasing for

indoor illumination uses. Colors of most materials will appear more natural under the 4500-white lamp, the lighting specialists claim.

Lamps are available in the 4500-white color, from 6-watt to 100-watt sizes. In addition to the regular fluorescent lamps, the new color is available in all four sizes of the company's Slimline fluorescent lamps.

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Two Frozen Food Cabinet Models Announced by York

TWO MODELS of frozen food cabinets designed particularly for hotels, restaurants, hospitals, smaller type commercial establishments, and for farm use, have been announced by York Corp., York, Pa. The larger unit, with a capacity of 33 cu. ft., will hold up to 1,300 lb. of frozen food, and the other, with 16½ cu. ft., will hold approximately 600 lb. Although the primary purpose of these units is frozen food storage, they are both equipped with quick freezing compartments to freeze fresh food before placing in the storage section.

The 33-ft. unit, an upright model with front opening doors, has a condensing unit and controls on top. A ½-hp. motor drives the compressor on this model, which is approximately 6 ft. high, 5 ft. wide, and 34 in. deep.

A warning bell rings when the storage temperature goes above the recommended range, and a pilot light burns continuously as long as the power supply is not broken.

The 16½-cu. ft. model, with a ⅓-hp. condensing unit, has two extra large access lids and movable partitions in the storage compartment for convenience in stacking packages. This unit is approximately 6 ft. long, 3 ft. high and 29 in. deep.

Both units have exterior casings of baked white enamel on bonderized steel, and the interiors are made of matte-finished aluminum. Freon-12 is the refrigerant used.

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R-40 Infrared Lamp Withstands Thermal Shock

A NEW R-40 infrared "Hi-Heat" Lamp has been introduced by Radiant Lamp Corp., 300 Jelliff Ave., Newark 8, N. J. The new lamp is made of special heat-resisting glass to reduce breakage caused by thermal shocks encountered in drying ovens containing volatile fumes. The lamps are available in 250- and 375-watt sizes.

Heat Pump Units Now Being Produced

A NEW commercially available heat pump, called the Marvair, for use in homes, offices or small commercial buildings, has been announced by the Muncie Gear Works, Inc., Muncie, Ind. The units are designed to produce heat during the cool months and cool air during the warm months and to force the air as needed through a conventional

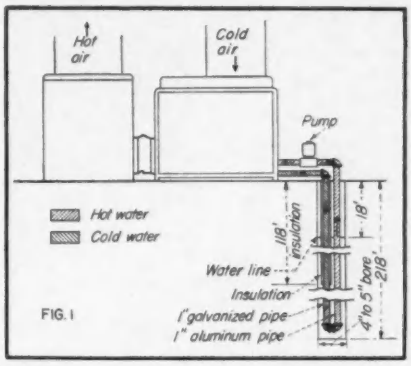


FIG. 1

air duct system. They are automatic in operation, switching from the heat to cooling cycle, as needed, with a single thermostatic setting.

Units are made in a 3-hp. size, which has a heating capacity of 60,000 Btu. with water at 50 deg. F., and a 5-hp. size with a 100,000-Btu. heat capacity. Cooling capacity with water at 75 deg. F. for these units is 32,000 and 54,000 Btu. respectively.

Marvair utilizes the earth as a heat source. This heat comes in contact with the water pipe, Fig. 1, and is absorbed by the water. In pumping the water up the pipe to the water radiator, Fig. 2, the heat is carried along and is there transmitted to the F-12 refrigerant used in the unit.

This refrigerant gas is carried to the compressor where the pressure is increased, and, as in all adiabatic compressors, the temperature increases. This higher temperature and pressure gas is discharged from the compressor and moves to the air radiator where the heat is given up to the recirculating air in the duct.

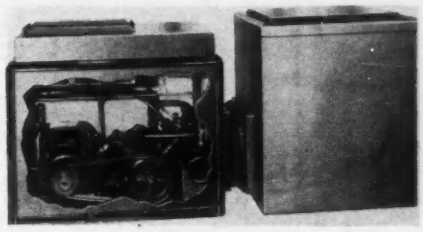
In the cooling cycle, the warm air in the room is circulated through the duct to the heat radiator where it gives up some of its heat to the refrigerant. This medium transfers the heat to the water radiator where it is given over to the water for transmitting to the ground.

City	Degree-Days	Kw.-Hr.
Indianapolis	5,298	7,947
Minneapolis	7,850	11,775
Denver	5,674	8,811
San Francisco	3,264	4,896
New Orleans	1,024	1,536
New York	5,347	8,020

Fig. 1 shows the piping for transporting the heat to the unit; Fig. 2, the means of transferring the heat to the room; and the cutaway illustration gives an indication of the unit's general appearance.

The compressor is a 4-cylinder, V-type, 1¾-in. bore by 1¾-in. stroke, with cylinders cast in pairs mounted at 90-deg. angles. Pistons are timed to give one compression stroke per 90-deg. revolution. Motors are of the capacitor-start, induction-run type. The design provides for a starting torque of approximately 300 percent on the compressor and a starting torque of 185 percent on the air blower motor and the water pump motor. The lower starting torque is used on the latter motors to prevent belt slippage, noise or vibration if brought up to speed to quickly. All motors are designed for use on 230-volt circuits.

In a test run in Muncie, Ind., one of these units consumed 8,070 kw.-hr. in



heating a 30 by 23.6-ft. house and a 13.6 by 20-ft. garage garage during the period from November 27, 1944 to June 11, 1945. The degree-days during this period were 4,833.

The house was a one-story structure with plastic on rock lath and cellotex with wood siding. The ceiling was insulated with 3-in., blanket-type Balsam wool over the living quarters. The basement and garage were partially

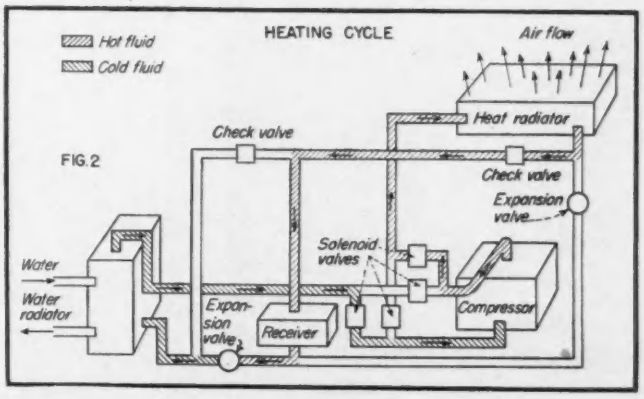


FIG. 2

heated while the living quarters were 78 deg. continuously.

The accompanying table contains an estimate of power consumption for heating the same house in several cities based on a 72-deg. day setting and a 68-deg. night setting.

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Built-In Wall Heaters Announced for Home Use

TO MEET the increasing demand for complete electrical home heating facilities, the Electromode Corp., 45 Crouch St., Rochester 2, N. Y., has announced a complete line of all-electric "Bilt-in-Wall" heaters. The new models have the same type of one-piece finned aluminum inclosed heating element as is used in the Bilt-in-Bathroom models announced last year. Units are reported as approved.

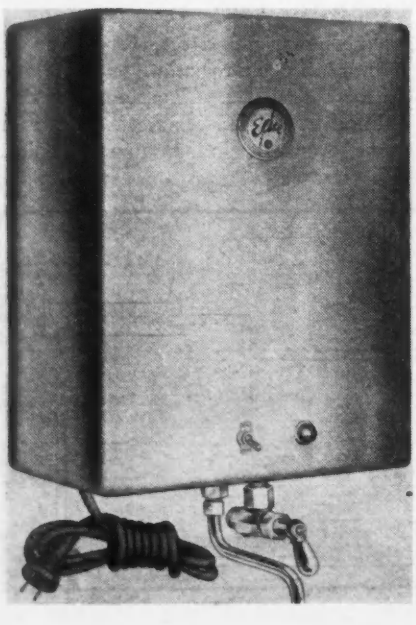
•

Electric Water Heater Has Two-Gallon Capacity

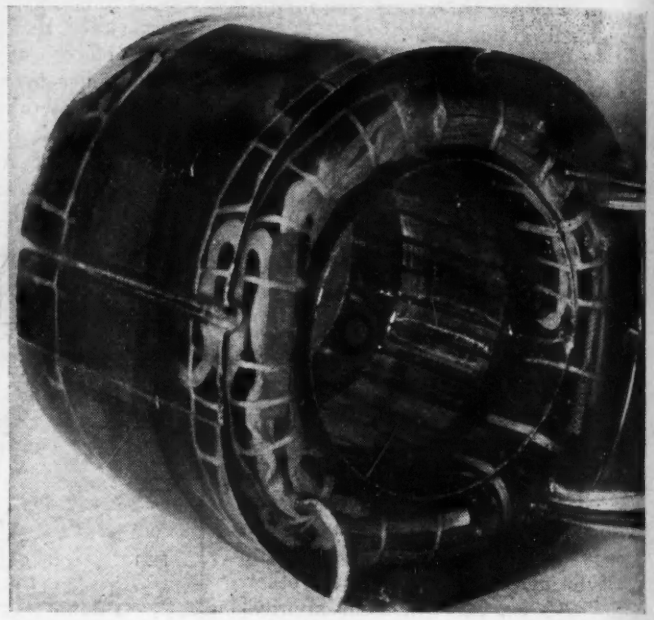
A NEW 2-gal. capacity, non-pressure type, automatic electric water heater has been announced by the Acme Laboratory Equipment Co., 506 West 124th St., New York 27, N. Y. The heating units operate from a regular convenience outlet, are thermostatically controlled and have a demand of 1,320 watts.

It is equipped with a toggle switch, 6-ft. rubber-covered cord and plug, and a neon pilot light. The copper tank is satin finished outside, tin lined inside and is insulated with fibre glass.

The cold water input pushes out the hot water, whose flow from the tank is controlled by the valve on the cold water supply.



Coil-Impregnating Compounds Nearly 100% Solids



A SERIES of thermosetting organic resin compounds, which are nearly 100 percent solids, for impregnating, filling and molding usage have been developed by the Acme Wire Co., 1255 Dixwell St., New Haven, Conn. The compounds were used during the war to eliminate voids in encased equipment, to protect coils against moisture and heat and to combat the effects of corona.

Some of the compounds can be operated intermittently at 300 deg. F. They are reported not to become brittle at minus 40 deg. F. The manufacturer reports that, upon setting, they do not become rock hard but, rather, have a natural resiliency which serves as a cushion for fine wire windings and provides for the natural expansion and contraction of coils in service. They are stated not to crack or chip and to withstand serious vibration.

The materials are resistant to the action of oil, dilute acids, and gases. They have a low water absorption and will stand immersion in both fresh and salt water. Dielectric strength is reported as 2,000 volts per mil between points on a momentary test with a thickness of 0.01 in., and 750 to 850 volts per mil with 1-in. diameter flat electrodes on momentary test in oil with a thickness of 0.05 in.

Each of the compounds is supplied in two liquid components. One is the base compound and the other the air activator. Once mixed, polymerization begins. In production, after application, the material is completely polymerized or cured by baking at about 200 deg. F. for 12 to 24 hours depending upon the material and the application.

The accompanying illustration shows a ¼-hp. motor stator, impregnated and molded in one of the compounds.

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Supervising Control System for Water Heaters Announced

A NEW SYSTEM of remotely controlling electric hot water heaters has been developed by the Control Corp., 718 Central Ave., Minneapolis 14, Minn. The system, called Super-Trol, consists of an actuator which sends control signals out on the distribution circuit and receiving relays which cut the heater in and out of the circuit as system load conditions vary.

The system was tested recently on a midwestern rural 7,200-volt, wye-connected, grounded neutral system. There are about 1,200 transformers scattered over the 500 miles of line on the system. At the time of the test the system was unbalanced and as much as 12 amp. was flowing in the neutral.

Power for the control system was supplied by three automobile storage batteries. The receiving relays, moved around the system and simply plugged into convenience outlets, had no difficulty in picking up the "opening" and "closing" signals over a test distance up to 40 miles—the maximum line distance available from the substation.

The equipment is available for both attended and unattended substations. In unattended stations where automatic control is desired, a load totalizer is provided which will operate the transmitter and cut water heater relays in and out of the circuit in accordance with station load conditions.

Manufacturer states that the flexibility provided by the manual or automatic control will assist in the more effective loading of equipment by filling in the unpredictable gulleys in the day load curve and by taking advantage of the week end and holiday dips.

Similar receiving relays, equipped with suitable time delays, are available for cutting street lights in and out of service.